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PANOPHTHALMITIS: ORBITAL CELLULITIS AND SUBDIAPHRAGMATIC ABSCESS. AUTOPSY. A POSSIBLE CASE OF METASTASIS.

By Charles Stedman Bull, M. D.,
of New York.

The following case of panophthalmitis and orbital cellulitis is of great interest because of the obscure complication which was only revealed at the autopsy.

The patient, J. L., aged 40, single, born in Scotland, and by occupation a carpenter, was admitted to the New York Eye Infirmary on February 5, 1896, suffering from panophthalmitis. He had always enjoyed good health until very recently, and was a man of temperate habits. He had had gonorrhœa many years ago, but denied ever having had syphilis. Two weeks previously to the occurrence of the ocular symptoms he had a slight chill, followed by fever, and felt rather miserable for a number of days, going to his work, but giving it up repeatedly. On February 1st he noticed a slight redness and lachrymation of the right eye, with some pain. On the following day the lids began to swell and the eyeball to protrude, and the pain

became severe. The symptoms grew rapidly worse and vision was soon lost.

On admission to the infirmary there was marked oedema and swelling of both lids, with great chemosis of the ocular conjunctiva, the latter protruding between the edges of the lids and being covered by a grayish membrane. The eyeball protruded forwards, downwards and outwards and was immovable. The cornea was hazy, the anterior chamber very shallow, the iris contracted so that the pupil measured only 2 mm., the aqueous turbid, the iris discolored with numerous punctate hemorrhages on its anterior surface, and there was no reflex from the fundus. Tension was +3 and there was no perception of light. There was moderate tenderness on pressure, and pain was complained of only in the globe.

The usual treatment was instituted, viz., constant application of hot moist bichloride cloths, cocain and atropine instillation, rest in bed and a nourishing diet.

February 7th. Patient is dull mentally and apathetic. Complains of general weakness. Has a weak and irregular pulse, but no other general symptoms. The patient has a septic temperature from the beginning. Swelling of lids and exophthalmos increased. Digitalis, strychnia sulphate and stimulants given.

February 9th. Exophthalmos considerably more marked. Signs of deep fluctuation in the orbit. Incision into orbital tissue discharged some blood, but no pus.

February 12th. Patient complains of very little pain. Yellow reflex from pupil. A few small hemorrhages into the anterior chamber. Moderate tenderness. Tension slightly below normal. General condition of patient bad, with soft, weak and irregular pulse. Is irritable, and his mental processes are very slow.

February 13th. Swelling of the lids and conjunctival chemosis much diminished, and exophthalmos decidedly lessened. Motility of globe partially restored. Pus discharging from the wound in the orbital tissue made by the knife. Patient had two chills in the night, lasting 20 minutes and 65 minutes respectively. The first chill was followed by a slight rise in temperature and profuse perspiration. This was soon succeded by the second chill, after which the temperature rose to 106°, and there was a low muttering delirium. Careful physical examination of the chest and abdomen showed nothing abnormal except a soft systolic mitral murmur.

February 14th. No rise in temperature until the evening. Chill at 12:20 a. m., lasting 50 minutes, followed by a profuse cold perspiration and a temperature of 104°, and

low, muttering delirium. Exophthalmos rapidly subsiding. T—3.

February 15th. Violent chill at 3 p. m. yesterday, followed by a temperature of 104. 6° and profuse perspiration. Blood examined for malarial organism with negative result. The patient perspired profusely all night, and is dull and somnolent. Examination of the lungs show slight dulling of the percussion note and decrease in the respiratory sounds over the base of the left lung behind the posterior axillary line and up to the sixth rib. Vocal fremitus and reasonance unchanged. Muscular sounds of the heart very weak. Liver and spleen not enlarged, nor tender on palpation.

February 19th. Patient has had daily chills, usually in the afternoon, with irregular, weak pulse, and subsequent rise in temperature to 103 or 105°. No positive signs indicating position of pus. Patient seems stronger and takes nourishment well.

February 26th. Patient decidedly stronger. Chills continue daily but are less severe, though temperature still rises to 105. 8° and over.

March 1st. Temperature rose at ten o'clock last night to 107-8°. Patient was wildly delirious and got out of bed. By two o'clock a. m. the temperature had fallen to 96° and remained below normal until nine o'clock a. m.

March 2nd. Patient this morning expectorated a large quantity of offensive pus. Examination showed pus cells, epithelium, broken down connective tissue, but no tubercle bacilli. Slight impairment of percussion sound and suppression of respiratory murmur at base of left lung. Patient stupid and speech incoherent, but takes nourishment very freely. Was examined by the consulting neurologist of the hospital, who was unable to positively locate the pus cavity, but doubted its existence in the cerebral lobes, and would not urge any exploratory operation.

March 4th. Patient's temperature rose above the registering point of the thermometer (110°,) and this rise was followed as usual by a profuse perspiration, soaking the bedding entirely through to the rubber sheet beneath. Patient complained of severe pain in the back in dorsal and lumbar regions, and is so weak that he cannot turn in bed. Expectoration more profuse and offensive. Dullness and absence of respiratory sounds at base of left lung still continue.

March 6th. Severe chill this a. m. followed by a temperature of 105°, and profuse perspiration. Patient plunged in a stupor from which however he can be aroused. Expectoration very profuse and offensive. Examination show it to be composed of disorganized graular tis-

sue, disintegrated pus cells, and a large variety of bacteria, staphylococcus, streptococcus and diplococcus, with saprophytic bacilli of various sizes.

From this time the patient gradually sank and death followed as a result of exhaustion of all the vital powers, at 3:45 a. m., March 22nd.

The urine showed nothing abnormal until February 19th, when a small amount of albumen was found, and the urine contained pus cells in moderate amount. No sugar and no casts at any time. Its specific gravity varied between 1019 and 1026.

Autopsy—4:30 p. m., on March 22, 1896.

Body somewhat emaciated. Rigor mortis fairly well marked. Bluish discoloration of skin in lower right iliac tegion over a surface 5x8 cm. im extent. Right eyeball runked and atrophic, and eyelids on this side greatly re-sracted.

Abdominal Cavity.

Position and appearance of omentum normal. *Liver* normal in position. *Gall bladder* of normal size and moderately filled. *Bladder* distended. *Diaphragm* reaches the 5th intercostal space on the left side, and the 4th. on the right side. *Spleen* slightly enlarged, friable, and bound down by adhesion to omentum and diaphragm. *Right Kidney* very large 16cm. long, 9 cm. deep and 6 cm. wide. Weight 17½ ounces; veins somewhat dilated beneath the capsule, which was slightly adherent. Kidney somewhat congested but otherwise apparently normal.

There was a large abscess cavity, extending between the diaphragm, beneath the peritoneum of the diaphragm, to the median line, laterally to the abdominal wall, and forward to the commencement of the costal cartilages, and backward to the spinal column. The abcsess contained about twelve ounces of pus, of the consistence of thick cream.

There was nothing found to represent the kidney on the left side, except a small mass of tissue supposed to be suprarenal capsule. This was not in close relation with the abscess cavity.

There was no general peritonitis, and the peritoneum up to the margin of the abscess was apparently normal. No ureter was found passing to the bladder from the left side. The ureter on the right side was of unusual size. Liver slightly enlarged. A perityphlitic abscess passes transversely through right lobe.

Thoracic Cavity.

The pericardial fluid was normal in quanity. The heart was normal in size. The aorta was apparently larger than

normal. There was slight dilatation of the left ventricle. One small atheromatous patch on the inner half of the bicuspid valve. Lungs quite deeply pigmented. Pleuritic adhesions in left lung extending throughout the whole of the posterior and lateral surfaces. Base of left lung firmly bound down. Lower lobe congested but not consolidated. Base of right lung firmly bound down to diaphragm. Lower lobe congested, and friable. Some fresh exudation on pleural surface. Marked evidence of bronchitis.

The abscess cavity between the spleen and diaphragm in all probability could not have developed to its present size in less than ten days, and its duration may have been much longer.

CAVITY OF SKULL.

Vessels of pia mater slightly congested. Slight plastic exudation along the vessels of the vertex, extending into the longitudinal fissure, especially on the left side. Base of cerebrum free from any plastic exudation except in fissure of Rolando. Optic nerves and chiasm free from exudation. Small amount of plastic material along the larger vessels. Sinuses normal.

The stump of the right eye and the right optic nerve as far as the chiasm were removed, together with a portion of the orbital tissue. The globe was very much shrunken. Macroscopical and microscopical examination showed the ordinary changes found after recent panophthalmitis. Bacteriological examination disclosed the presence of micrococci in the interior of the eye and in the sheath of the right optic nerve throughout its whole extent. The micrococci lay in masses, apparently occupying lymph vessels and spaces. A few were found scattered in the tissues mentioned, but did not form any considerable part of the whole. Morphologically the micrococci resembled the staphylococcus pyogenes.

For the Report of the autopsy and microscopical examination I am indebted to Dr. John E. Weeks, the Pathologist of the Infirmary.

TRACHOMA; A REPORT.

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Trachoma, like many other diseases, rejoices in numerous synonyms, but the writer will make use of but one, *granular ophthalmia*, eschewing the terms "granular" and "granulation." as belonging, in the surgical sense, to the process of repair.

It is a specific, infectious, inflammatory affection of the conjunctiva, mostly attacking that part of it lining the under surface of the lids and constituting the fold of transmission from the lids to the ball, the so called retrotarsal fold.

It is characterized by the presence, in this part of the conjunctiva, of more or less numerous small elevations or excrescences, varying in size, color and appearance, according to the stage and severity of the disorder.

Certain races of people are predisposed to this disease, especially those of them who are poorly housed and fed.

The cause under these circumstances is two fold: first the vitality is lowered, hence the resistance less, and second, wash basin, towels and other articles are used in common, which gives very favorable opportunity for infection.

Granted, that the individual is in perfect health, with an absolutely healthy conjunctiva I doubt very much the probability of his becoming infected by this general exposure,

*Read by title before the meeting of the Nebraska State Medical Society.

any more than that the healthy lung tissue will be infected by the constant exposure one is subjected to who is habitually in the presence of those who are afflicted with tuberculosis.

I also believe, with Nettleship, that the liability to the disease is transmitted from parent to child.

I do not wish to go on record as advocating the doctrine that the healthy eye is wholly exempt from the infectious material of trachoma, but that the healthy conjunctiva is a great barrier to infection.

In acute conjunctivitis there is swelling of the papillae which causes the conjunctiva to be very rough, also in catarrhal and purulent ophthalmias, in addition to the enlarged papillae, the glands of the conjunctiva are also swollen, but this does not constitute trachoma. The trachomatous nodules are hemispherical in form, grayish yellow in color and have a peculiar semi-translucent appearance, and are the result of infection from eyessimilarly diseased.

The micro-organism of trachoma has not been sufficiently demonstrated to be accepted as an ophthalmologic verity, yet our knowledge of infectious diseases in general enables us to say with a great degree of confidence, that such an organism does exist, and is the infecting principle in trachoma.

In health the palpebral conjunctiva has a pale red appearance, is very vascular, and is closely adherent to the tarsal cartilages. Its general structure is that of mucous membrane in other localities. Near the border of the lids, especially in elderly people, the Meibomian glands, imbedded in the posterior surface of the tarsal cartilages and lying almost parallel with the roots of the lashes, shine through. The mucous membrane is covered with epithelium which sends prolongations into the deeper layers between the papillae. The underlying stroma consists of fibrous connective tissue interspersed with adenoid tissue.

The retro-tarsal fold, or portion which passes in a fold from the lids to the ball is loose and consists of many layers.

Here the papillae are less numerous and the epithelial pouches or prolongations are larger. In this part of the conjunctiva are found the tubulo-acinous glands of Krause,

more numerous near the outer canthus in both upper and lower lids, a few being scattered over the tarsal portion. Here, too, the adenoid tissue is gathered into distinct masses forming follicles.

The acute form of granular ophthalmia which is quite rare, is not a specific disease *per se*, but is probably a complication, *i. e.*, when an eye becomes infected by secretion from a very active or virulent case, one with concommitant blenorrhea, the two processes are jointly set up in the same eye, or what is probably more frequent, the case has been one of mild trachoma when the eye takes on the catarrhal or blenorrheic process. Dr. de Schweinitz states however, that acute trachoma 'must not be confounded with the violent exacerbations to which the chronic forms of the malady ear liable.' In many of these cases, after a few weeks, there is absorption of the hemispherical bodies, and the conjunctiva returns to its normal condition without any cicitricial tissue, evincing the fact that it was not a case of true trachoma, but probably one of acute simple, or complicated follicular conjunctivitis, for the effect of genuine trachoma are so indellibly stamped in cicitricial characters in the conjunctiva, that time cannot efface them beyond the recognition of the experienced observer.

The chronic form, the *trachoma verum*, is the one in which we are most interested, as it is followed by such disastrous sequelae. It may follow the so called acute trachoma, but its onset is usually more insidious, in fact in mild cases the host hardly reallizes that he is the subject of any eye trouble, until the condition is quite well advanced.

The writer of this ariticle however, is content to consider the subject under the general head, chronic trachoma. The condition known as follicular conjunctivitis in which there is hypertrophy of the physiologic follicles, is not trachoma.

Follicular conjunctivitis may be a prediposing cause, in that it prepares the soil for infection by the secretion from trachoma, but it will not develop into true trachoma, unless such infection takes place.

Soelberg Wells regarded this disease as hypertrophy of the closed lymphatic follicles of Krause and this the writer believes is the generally accepted view.

Schmidt—Rimpler states that he has never seen a pronounced case of follicular conjunctivitis which led to the formation of "granulations" though he has followed many cases for years.

In true granular conjunctivitis there is decided cell infiltration of surrounding lymphoid tissue. The trachoma granules are more yellow, larger and more numerous than the follicles of follicular conjunctivitis. They may occupy nearly the entire palpebral conjunctiva, are more deeply seated than the latter, and though the case may be mild, the conjunctiva loses its transparent condition.

It may manifest itself in different grades of severity, from a few scattered trachoma granules to the condition in which the entire mucous membrane of the palpebrae and fornix is one mass of trachomatous tissue, with general involvement of the conjunctiva and all its glands.

The instances cited by Fuchs to establish what he considers a fact, viz., that cases of chronic blenorrhea will develop into trachoma, and eyes inoculated with the secretion from cases of chronic blenorrhea, will also produce trachoma in its different forms, and vice versa, are in my opinion cases of mixed infection. Dr. Würdemann goes further and states that inoculation from any morbific source may do precisely the same thing, provided the infection be not so severe as to cause an acute reaction by which the products of inflammation are reabsorbed, and the disease itself being not thus self limited.

The view taken by De Wecker, that true trachoma granules are neoplastic formations due to extensive infiltration, and are akin to tubercle is not far from correct.

The masses of infiltration which go to make up the trachomatous nodules, appear as rounded aggregations of lymph corpuscles, somewhat analogous to those of Peyer's patches. This cell aggregation may pass without any line of demarkation into the surrounding tissues, which are also very rich in cells, or be confined by an incomplete capsule of connective tissue.

Cases of trachoma, pure and simple, must in the very nature of things be quite rare, for as has been shown, not only are new formations (true trachoma granules) present, but the papillae, lymphatic follicles and all other conjunc-

tival structures are involved, hence, as Fuchs remarks, the mixed trachoma of Stellwag is almost the only form that occurs. When the trachomatous condition has spent itself, or has been hastened to a termination by appropriate treatment, we have the beginning formation of the cicatricial process, which according as the infiltration has been slight or extensive, causes less or more serious changes in the conjunctiva,. What seems to take place in this process of cicatrization is as follows: the cell products going to make up these bodies, and those which are more or less thickly infiltrated into the general conjunctiva, begin to disappear, some by resorption while others are transformed into spindle cells and later into connective tissue. This fibrillar tissue contracts and we have remaining the different sequelae of trachoma, the particular form dependent largely on the extent of the conjunctival involvement, *i. e.*, trichiasis, entropion, ectropion, symblepharon posterius (which if severe may lead to lagophthalmus,) or more or less pronounced xerosis.

Trachoma, then, is a chronic, specific inflammation of the conjunctiva, more particularly that part of it which covers he under surface of the lids and constitutes the folds of transmission or fornix. While there is at least in severe cases, involvement of all the structures of the conjunctiva including its glands, papillae and follicles, its distinguishing feature is the presence of more or less numerous nodules or bodies which are new growths, and when they disappear always leave the conjunctiva scarred to a greater or less extent, and if severe or badly treated, are often followed by distressing and disfiguring sequelae. It is always the result of infection from a trachomatous eye and does not arise as the result of inoculation from other forms of ophthalmia. It is entirely separate and distinct from follicular conjunctivitis, in which the enlarged follicles are hypertrophies of physiologic follicles and not new growths.

Treatment. Much can be done in the way of prophylaxis by improving as far as possible the hygienic surroundings of these classes especially exposed to the disease. When large numbers are crowded together in institutions their eyes should be frequently examined and all diseased cases isolated and cured as speedily as possible.

In private practice all patients should be cautioned to use separate beds, towels, wash basins etc., from other members of the family.

The eyes of inmates of institutions where trachoma is likely to develop, should be kept in the best possible condition of health.

In the treatment of all cases the general health should be looked after and all errors of refraction corrected by properly adjusted lenses.

Good food, tonics and favorable surroundings should be provided.

The treatment of trachomatos conjunctivitis may be said to have a two fold object in view: first, it should be directed against the inflammatory complications and their consequent increase of secretion, and second, it should hasten as quickly as possible the disappearance of the conjunctival infiltration and hypertrophy. In this way we reduce to a minimum the cicitricial contraction of the conjunctiva and avoid the annoying sequelae.

There is, unfortunately, no known treatment that will rapidly cure firmly established cases of trachoma, and heroic effort in this direction have quite uniformly been more or less disastrous, aiding rather than preventing the disastrous cicitricial formations, which it is the object of treatment to prevent.

A condition which is too often overlooked in the management of cases of trachoma, is spasm of the orbicularis keeping up the irritation. Where this is present, canthotomy will give valuable aid as a preliminary in the way of further treatment. "It is now known that an important factor in the production often tropion is spasm of the orbicularis muscle, especially the border fibers. By this means the posterior angle or border of the lid is whetted off and allows the ciliary angle to come in contact with the cornea." (Berad.)

In cases with acute manifestations the initial treatment should be mild, cold, by means of compresses wrung out of ice or very cold water, applied to the closed lids and frequently changed, together with irrigation of the conjunctival sac with solutions of boracic acid or bichlorid of mercury, (1 to 4000 to 10000.)

As soon as the secretion is established the judicious use of silver nitrate in solution is very efficacious. It is antiseptic, astringent and caustic, and therefore while it stops the development of the irritating micro-organisms also hastens the exfoliation of the exuberant mucous corpuscles and disorganized epithelium, and allows regeneration from the less affected epithelium, of the crypts or prolongations that dip down deeply into the mucosa between the papillae. (Würdemann.)

As the secretion causes an agglutination of the upper and lower lids during sleep, which prevents the escape of the irritating secretion, it is advisable to use an unguent at night. Simple vaseline or, what I prefer, one of the following should be smeared on the lids and into the lashes, either one or the other according to stage and irritability of the individual case: R. Pulv. Opii (aq. ext.), Acid. Boric., aa, gr. V, Zinci Oxid., gr. X to XV, Vaselinae, ʒiv Hydrargyr. Oxid. flav., gr. iv, Vaselinae, ʒiv.

The strength of the silver solution varies according to the stage and severity of the case and views of the surgeon. Some authorities advocate one thorough application to all parts of the diseased conjunctiva, except that covering the sclerotic and cornea, of a strong solution (10 to 20%) in severe acute cases, and claim that one application is usually sufficient. Instead of the simple aqueous solution some advocate the use of equal parts of water and glycerin to make the solution. The strength usually adopted by the profession and the one I am in the habit of using is a simple aqueous solution, varying from 1 to 5%, which should be applied to the diseased membrane of the everted lids by means of pledgets of absorbent cotton, from twice a week to twice each day, washing it off at once with a sterilized 1% salt solution. In lieu of the silver solution many oculists prefer strong solutions (1 in 100 to 500 parts water) of bichlorid of mercury, used in the same way.

When acute manifestations subside and we have the chronic hypertrophy of the papillæ, trachoma nodules, and general infiltration, or in other words a full grown case of trachoma, its treatment in its different forms of intensity, involves one of the most perplexing subjects of opthal-

mic surgery. As Dr. Casey A. Wood well remarks, "There is no disease whose conduct requires more judgement, skill experience and more variations in its treatment than a genuine case of trachoma, especially when its ravages have extended to the sulci or to the deeper layers of the mucosa."

The two remedies which have overshadowed all others from time immemorial, and which still hold first rank in the treatment of trachoma, are nitrate of silver and sulphate of copper. The indications for their respective uses are quite plain. Silver in solution is to be employed when the disease is in its earlier stages and secretion more or less abundant, when corneal ulceration is present and when the conjunctiva is succulent.

When there is comparatively little inflammatory action and scant secretion and especially if it is one of long standing and the conjunctiva has lost its succulent condition, and the cornea in tact the case is better treated with a pencil of sulphate of copper thoroughly rubbed on all affected parts, from one to seven times a week. The *lapis divinus* stick, or the mitigated solid nitrate of silver of the British Pharmacopeia are preferred by many. Boroglycerid, in 30 to 50 per cent strength, is a good remedy to hasten absorption in the later stages, and is said to prevent to a certain degree the tendency to xerosis. A solution of tannin in glycerin, 20 to 60 grains to the ounce, or sulphate of alum in substance applied to the lids in mild cases are favorite remedies. If corneal complications arise, atropin and hot water should be used in a majority of cases, but we must remember that the palpebral disease is the cause of the corneal trouble and when we have cured that we are rid of the corneal disease.

Many methods have been proposed looking to the rapid destruction of the trachomatous bodies. Among these is expression of the contents of the nodules by the aid of the thumb nails or with forceps—those devised by Drs. Knapp and Noyes being most in favor. If the infiltration is deep seated, the conjunctiva is frequently scarified before expression, to facilitate the escape of the contents.

The procedure known as "Grattage" or "Brossage", which consists in brushing briskly with a short stiff-bristl-

ed tooth brush the trachomatous conjunctiva and afterwards applying a strong solution of bichlorid of mercury, is highly spoken of by many operators. Curetting the diseased tissue with a sharp curette, excision of the individual nodules or of large portions of the retrotarsal fold, especially of the upper lid, galvano cautery applied to the separate neoplasms, electrolysis, scratching with specially devised rakes, and numerous other methods have been proposed and have had their advocates. Of the different procedures noted above, expression seems to be held in greater favor by a majority of the profession, but it is far from being suitable in all cases being more generally applicable in the cases of so called "Follicular trachoma", and in those cases where the infiltration has not extended to the deeper structures of the mucosa.

In a translation by Dr. Dunbar Roy of Atlanta, of an article by Dr. Ed. Pergens of Belgium, entitled "On the value of Mechanical and Surgical Treatment of Chronic Trachoma," the author has shown that after all of these methods of operative treatment, the disease still remains demonstrable on miscroscopic section, after months and even years.

To my mind the success attending the use of these different methods is dependent on the fulfillment of three things, viz., first, the direct removal of diseased tissue, second, the increased powers of resorption brought about by the resultant reaction, and third, access of our medicaments (which experience has taught us must always be used after all operative methods) to the diseased tissues as a result of the operation.

The writer is partial to the curette in properly selected cases, as it can be used under cocain anaesthesia and its use may be confined wholly to the diseased tissue; it does not bruise the tarsus and is effectual in removing the diseased tissue, but much injury may be done unless it be used with great care.

A few words with reference to pannns. Histologically it is rich in cells which greatly resemble the infiltrated trachomatous tissue. It insinuated itself between the epithelium and Bowman's membrane and is said to be due to the mechanical action af the roughened upper lid playing over the

cornea, but as it is anatomically analagous to trachoma of the palpebrae, we must conclude that this is not the essential cause. If it is cured in its recent state before the membrane of Bowman is destroyed, a perfect recovery with a transparent cornea will result, but ere long this structure is invaded, and in healing, cicatricial tissue forms and perfect tranparency is out of the question.

The treatment of this condition involves the general treatment of the trachoma. The operation of syndectomy which consists in the removal of a narrow strip of conjunctiva and sub conjunctival tissue structures, down to the sclerotic, entirely around the limbus, thus cutting off the hyperabundant blood supply, is good practice in some cases. The old method of inoculating the eye with gonorrheal pus is now obsolete, as it is too dangerous, although it sometimes preformed wonders. Its place has been filled by jequirity in solution or powder. The object being to set up a reactive inflammation and thereby cause absorption of the pannus. In the April number of the Ophthalmic Record Dr. Savage, the editor, gives his experience with the use of weak solutions of the drug, continued over a long period in cases of very chronic trachoma with pannus. The results were quite satisfactory. The digestive ferments have been used by some ophthalmologists with good results; the theory being that the tissue composing pannus is possessed with a low power of vitality, and hence is less capable of resisting the action of the ferment than normal tissue, and will be dissolved. Dr. Lydston of Chicago claims great success in the treatment of this condition by dusting the growth once or twice each day with a powder of equal parts of boracic acid and papoid.

The writer wishes to acknowledge the aid extended by the following gentlemen in the way of answering certain questions involved in the discussion of this subject: Drs. Casey A. Wood, Chicago, D. B. St. John Roosa and W. F. Mittendorf, New York, S. C. Ayres' Cincinnati, G. C. Savage, Nashville, G. E. De. Schweinitz Philadelphia, Myles Standish, Boston, and Charles W. Kollock, Charleston, S. C.

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third English Edition. "Stellwag on The Eye," Second American from the Third German Edition. "Diseases of the Eye," Nettleship, Third American from Fourth English Edition. "Ophthalmology and Ophthalmoscopy," Schmidt —Rimpler, Roosa's Translation from the Third Revised German Edition, "Diseases of the Eye," DeSchweinitz, "Text Book of Ophthalmology," Fuchs, Translated from Second German Edition by Duane. "The Refractive Condition of 190 Trachomatous Eyes," Hamilton, Ophthalmic Record Vol. V, No. 7, page 264; "Trachoma," F. B. Tiffany, Journal, A. M. M. A. Vol. XXII, No. 8, page 246. "———" Bach, Journal A. M. M. A., Vol. XXII, No. 24, "On the value of Mechanical and Surgical Treatment of Trachoma, Dr. Ed. Pergens, Belgium. Translation by Roy, Ophthalmic Record, Vol. IV, No. 4, page 137.

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KERATITIS INTERSTITIALIS ANNULARIS.

By H. Moulton, M. D.,
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On the twenty-eighth day of August 1895, Capt. S. aged 67, called with a letter from his physician Dr. W. N. Yates, which stated that the Capt. was a sufferer from occasional attacks of rheumatism, and that at the present time he was in the midst of an annual attack of hay fever; also that some time in 1894 he had had an attack of conjunctivitis for which he had been given a solution of sulphate of zinc of the strength of two and a half grains to the ounce of water.

Recovering from this in a few days, he had set the bottle containing this solution on a shelf where it remained till five days, before the date of his visit to me, when of his own motion, he instilled a few drops of it into his right eye which had been irritated for a few days past. His eye became rapidly worse. When he presented himself to his physician he was given a solution of atropia for temporary use, and referred to me. I found the eye without secretion but intensely red, the pupil dilated *ad maximum*, tension + I the cornea slightly hazy, with, scattered over its surface, a few rough but not excavated spots of opacity of less size than a pin head. But most curious was a ring of deep and dense opacity, between one and two millimeters in width, entirely surrounding the central two-thirds of the corneal area. The surface of this ring was slightly roughened. Between it and the limbus the cornea was clear, excepting that portion occupied by the arcus senilis, which in appearance and location was identical with that of the other eye. There was transparent cornea between the arcus and the limbus and between the arcus and the opaque ring. V=fingers at 4 ft.

In adition to the atropia the patient was using a 4 per. cent solution of cocaine, but on his own authority, and with inordinate frequency in both eye and nose. It was with the greatest difficulty I persuaded him that it was in-

jurious and that he must cease its use. I ordered, locally, pilocarpin, a collyrium of boracic acid and borax: internally, salicylates and quinia, with an occasional dose of calomel. The hay fever was at the same time treated with the electro-cautery and sprays to the nasal mucous membrane. Under this treatment the eye began to be relieved of its pain and redness. The tension became normal and the opacities gradually disappeared. The patient went home on Sept. 10th. with V $\frac{20}{30}$. The ring of opacity was still very plain and did not disappear entirely until some time afterwards. In November Dr. Yates wrote that the eye was well.

The only mention of such an effection which I find in literature is in a review in the Archives of Ophthalmology Vol. XXII, p 283, of an article by Vossius, in which he describes a case of "Annular Parenchymatous Keratitis" in a man aged thirty-six, who was non-syphilitic. As described the case was identical with my own.

Pfister has also described five cases of "Keratitis Interstitialis Annularis according to Vossius" (mentioned in Arch. Ophth. Vol. XX p 275.) There is no mention of such a form of Keratitis in any text book written, within my knowledge, and I have adopted the nomenclature of Vossius.

The etiology of the Keratitis is not clear to me, but probably the predisposing cause lay in the diathesis as determined by malaria, rheumatism or hay fever singly, or combined.

The tendency of the eye to disturbance during an attack of hay fever is well known. The untimely use of the astringent and the subsequent use of cocaine aggravated the condition already initiated.

THE OUTLINES OF PLASTIC LID SURGERY.

By F. C. Hotz, M. D.,

A LECTURE DELIVERED AT THE CHICAGO POLICLINIC, MAY 14, 1896, ILLUSTRATED WITH TWO PHOTOGRAPHS AND SIX FIGURES.

Gentlemen: When I agreed to deliver during this special course a lecture on lid operations, it could not be expected I should undertake the impossible as well as very unprofitable task of discussing and demonstrating all the operations that are preformed on the lids in the limited time at my disposal. I have therefore chosen for the subject of this lecture the plastic operations we perform on the eyelids for the correction of certain deformities which either exert an injurious influence upon the eye (Entropium) or constitute a serious cosmetic blemish (Ectropium.) But even in this limited field the number of different operations is so great that I fear I should tax your endurance too much if I should give a detailed description of the numerous operations for entropium and ectropium that have been invented in the course of time.

I propose therefore, only to speak on the general principles of plastic lid surgery; to point out the anatomic problems presented by the lid deformities and to outline in a general way the leading operative procedures for their correction. If you have gained a clear conception of the anatomic problems the operations have to solve; if you clearly understand the fundamental principles you can intelligently modify the operative procedures in every given case to suit the requirements of the occasion.

In every plastic operation on the eyelids strict and care-

ful attention should be given to the following conditions:

1. A good operation must effectively and permanently remove the deformity and preserve or restore as far as possible the movements of the lids.

2. The lines of incision in the eyelids should as far as possible follow the direction of the muscular bundles.

3. Cicatrices must not be left, by whose contraction the deformity may be reproduced; and on the other hand the result must not be dependent on cicatricial contractions.

4. No tissue, especially no portion of the lidskin must be removed unnecessarily.

5. The operation must not leave any scars to rub on the eyeball.

6. The operation must not produce any deformity or render the condition worse by making a second operation more difficult or impossible.

If we apply these principles to the numerous operations for entropium we find a great many of them do not reach our standard of a "good" operation; we must reject all methods (old and new) which attempt the correction of entropium by ligatures; also those which produce incisions and consequently scars on the conjunctival surface of the lid; and we must also reject the operations in which the excision and shortening of the lid-skin is an essential feature. This leaves only a small number of operative procedures which according to our standard can be regarded as good and rational methods and which alone deserve our further consideration. They can be divided into two groups, each representing a distinct principle ("Leitmotive") for the correction of entropium.

The first group aims to fix the lid border and the cilia in their normal position by immediate union to a fixed support above: and the second group aims to relieve the entropium by supplying the eyelashes with a support below whose presence prevents a re-inversion.

Let me now explain and show you on the cadaver how each group accomplishes its object.

1. The operation for fixing the lid border in its normal position by a fixed support above.

The idea of turning up the inverted lid by skin-tension has been the guiding principle of numerous operative pro-

cedures. The most of them, however, have been unsatisfactory because the tension exerted upon the lid-border was produced by shortening the integument between the lidborder and eyebrow. The fixed support for the tension was the supra orbital margin; but it is evident this tension cannot be uniformly maintained because the distance between the lidborder and the supra orbital margin varies considerably when the lid is closed or opened. If the tension is sufficiently strong to turn the inverted lid while it is closed, it will be insufficient when the lid is opened, because its free border moves upwards towards the supra orbital margin and the distance between these two points being shortened the tension of the skin is necessarily relaxed and loses its effect on the lid border; and therefore, you may after such operations often notice the strange phenomenon that the lid when closed is actually everted by the great tension of the excessively shortened skin, but becomes inverted as soon as it is opened. This is particularly true of the Jaecsche-Arlt operation; and it is surprising that an operation resting on such wrong anatomic basis could ever be so popular and still have its advocates and admirers.

To be effective the tension must have its fixed support in the lid itself. If you place a probe transversely upon an inverted upper lid just a little below its upper border and gently pushing the relaxed skin upwards fix it by a slight pressure of the probe against the upper border of the tarsal cartilage you will be surprised how little tension it takes to evert the cilia and lid border, and you will also convince yourselves that the eversion is accomplished by this slight tension as well when the lid is opened as when it is closed; for the fixed support of the tension being furnished by the upper tarsal border which, of course, maintains the same distance from the lower or free border during the movements of the lid, the traction exerted upon the free border remains the same whether the lid is open or shut.

The anatomic problem, then, before us is to fix the lid-skin to the upper border of the tarsal cartilage, and I will now show you how this is done: while my assistant putting a finger upon the supra orbital margin fixes the skin

there I seize the free lidborder and draw the lid downwards until its free border makes a decidedly convex line downwards. This traction puts the skin well on a stretch; and if I now make a tranverse incision from a point two millim. above the inner canthus to a point two millim. above the external canthus and carry this incision through skin and orbicularis muscle you see it divides the lidskin just a few millim. below the upper tarsal border leaving connected with the free border a skin flap whose height in the center measures about six millim. (this height varies in different eyes between 4 and 8 millim. according to the difference in the vertical diameter of the tarsal cartilage.) A few strokes of the scalpel separate the skin with the orbicularis fibres attached to it from the cartilage all the way down to the roots of the eyelashes. This is a very important part of the operation; for it secures to the lid border and the cilia the full benefit of the tension when afterwards the skin is drawn up and fastened to the upper tarsal border.

Having done this part of the operation I turn the whole lid skin over to expose its under surface lined by the muscular layer and remove with scissors a narrow strip of the muscle along the wound margin; and I also remove here these few muscular bundles which you see lying across the upper border of the cartilage. I do this to make sure that no muscular fibres will get between the tarsal border and the skin and interfere with their immediate and firm union, when they are brought together by sutures. Three sutures are usually sufficient to insure a perfect contact of the skin and tarsal border; but of course there is no objection to using a greater number if it should be deemed necessary. The first suture is placed at the centre of the wound; the curved needle armed with irondyed silk (No 2) is passed through the margin of the lidskin, then through the upper border of the cartilage and finally through the upper cutaneous margin of the wound. In the same way I then put a similar suture midway between this one and the inner canthus and another one midway between the central suture and the external canthus.

You remember not one particle of skin has been excised, but when I now close the sutures you will observe that the

lidskin is dawn up and slightly stretched and that this slight tension is sufficient to produce a decided turning-up of the eyelashes. If you perform the operation on the liv-

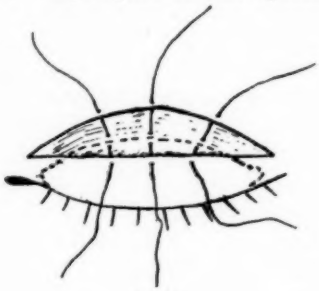


FIG. 1.

ing subject you must not close the sutures before the bleeding has well ceased and the wound is thouroughly cleansed. I usually do not put any bandage on the eye but keep the wound covered with iodoform powder. On the third or fourth day the sutures may be removed.

This operation can be employed also in all cases of entropium of the lid; only as its cartilage is very small it is better to pass the suture through the tarso-orbital fascia and to use this for the fixed support of the tension.

The operation can relieve all degrees of inversion of the upper lid provided its cartilage is flexible enough to allow the free border to turn up. But in many cases of entropium of a very high degree the cartilage is found quite inflexible and its rigidity stubbornly opposes the reposition of the free border. Under these circumstances the reposition can often be accomplished if we excise from the lower part of the cartilage a narrow wedge shaped strip. This is called *grooving the cartilage* and is done in the following manner after the skin and muscle have been detached from the lid surface all the way down to the roots of the cilia as I have shown you before. A transverse incision is made through the cartilage, following closely the line of the hairbulbs; it is carried through the entire thickness of the cartilage but should not cut through the conjunctiva. Then a second incision is made two millim. above and parallel with the first one, and is carried through the cartilage in an oblique direction as so to meet the first

incision at the posterior (or conjunctival) margin of the lid border. The narrow wedge-shaped piece included between these two incisions is removed, leaving a narrow groove separating the cilia and lid border from the rest of the cartilage. If now the skin is drawn up and and sutured to the upper border of the cartilage, this traction draws the lidborder towards the body of the cartilage thus closing the groove and straightening up the free border.

In many cases, however, the tarsal cartilage is shrunken so much that this grooving operation cannot be performed. If we cannot groove or do not want to do this rather tedious operation we must adopt a different plan for the relief of the entropium; if we find it impossible to straighten up the whole inverted lidborder, we may lift up only its anterior margin so as to get the eyelashes into their normal position, and construct under them for their support a new lid margin. This problem is solved by our second group of entropium operations:

2. *The operation for supplying the replaced eye lashes with a support below to prevent their reinversion.*

The principal features of these methods are: a transverse incision into the lid margin behind the eyelashes taking great care to leave all hairbulbs in the anterior margin of the incision. The incision is to be made deep enough that the anterior edge of the lidborder can be easily turned up. This rotation of the anterior edge turns the inverted eyelashes away from the eyeball and changes

FIG. 2.

the incision into a gaping groove (*a*) which must be filled with a graft of living tissue lest it should be closed by cicatricial contraction and draw the eyelashes down again. As grafting material narrow strips of skin, Thiersch's skin shavings, and the mucous membrane of the lip have been used. I prefer the solid skin grafts because they fill out the groove better than the thin strips of mucous membrane or Thiersch's shavings. And I have found the integument behind the ear the most convenient place where to cut these long and slender grafts. Against the use of skin for

grafting, the objection is often made that the fine hairs usually found in the skin grow in the graft and become a new source of irritation to the eye. But I have convinced myself that no hairs grow in these grafts and that whenever after this operation any hairs are found below the regular row of the eyelashes they are not new hairs but old eyelashes which the operator overlooked and left behind the intermarginal incision. On close inspection you will find these hairs come out behind the ingrafted strip.

But whichever kind of a graft you use, be sure the wound has ceased bleeding and is thouroughly cleansed of blood coagula before you put in the graft. I do not find it necessary to secure the graft in its position by sutures, but I bandage both eyes for 24 hours in order to stop all movements of the lids. After that time the graft, if alive, is already adherent so well that the winking will not disturb it.

If successful this grafting operation creates a new lid margin which takes the place of the original margin and holds up the eye lashes in their normal position. In all cases of entropium, however, the lidskin has become shifted downwards and hangs more or less heavily over the cilia, giving the lid a heavy drooping expression. Upon this condition, of course, the grafting operation has no effect; it can be remedied only by drawing the skin up and fixing it to the upper border of the cartilage. Whenever, therefore, this "sagging" of the skin is well marked, I combine the two operations and upon my experience would strongly advise you to do the same, if you wish to obtain results perfect in every respect.

II. The Operations for Ectropium.

The eversions of the lid which call for operative correction are the so called senile and the cicatricial ectropium.

1, The *senile ectropium* is the result of an abnormal relaxation (loss of tonicity) and elongation of the lidborder and occurs in the lower lid only. Its correction requires the shortening of the lidborder; a wedge-shaped piece of the requisite size must be excised, and the wound closed by sutures.

If this piece is removed from the center of the lid, the chances are, the lidborder will show a more or less deep

notch proportionate to the degree of cicatricial retraction. It is therefore customary to make the excision near the external canthus.

2. The *cicatricial ectropium forms* present so variable anatomic conditions that it is impossible to devise a uniform plan of operation suitable to all. Each case requires a careful study of its peculiar features to determine the best plan for its operative treatment,

There is however, one general principle which applies to all cases and should always receive your strictest attention: The first step in the operation must always be to release the everted lid from all cicatricial adhesions so thoroughly that its reposition can be done without any restraint.

If you disregard this principle your operation will never be a success no matter which method you may employ.

Aside from this general principle applicable to both lids, each lid presents its own important and different problems. It is therefore necessary to consider them separately.

(*a*) *The cicatricial ectropium of the lower lid* presents these two indications:

1. Its border being stretched and abnormally lengthened must be reduced to the proper size;

2. The replaced lid must be provided with a solid support below to hold it in its normal position.

For the solution of the first problem I think Arlt's operation commends itself to our favor: The incisions *ab* and

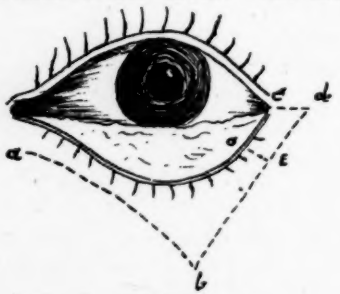


FIG. 3.

bd are made so that they make at *b* an acute angle. These incisions are carried right through the cicatricial tissues, and the flap *abd* is carefully dissected up to the lidborder and the lid released from all cicatrical restraints so that it

can easily be brought into its normal position. Now the lidborder is shortened by removing the piece *coed*, making an incision *co* along the edge just behind the eyelashes on the conjunctival side and the crosscuts *cd* and *oe*. If now the lid border is lifted up into its proper position the wound margin *oe* and *cd* are brought in apposition and held together by two sutures.

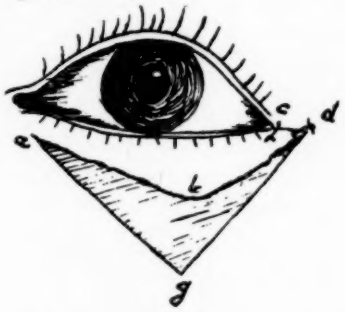


FIG. 4.

The reposition of the lid leaves below it the open wound *abdg* which must be filled with some solid material to furnish a good support to the lid according to the second indication stated above. This can sometimes be accomplished by mobilizing and sliding the margins *ab* and *gd* so that they can be united partly from *g* upwards and with the margin *abd* to form a Y shaped union.

If this plan is not feasible I think it better to fill the whole wound with a Wolfe's skin flap than to transplant a skin flap from any part of the face because the latter procedure would neccesarily disfigure the face by extensive scars.

2. *The ectropium of the upper lid* presents to us the very important problem of restoring its movements; for we must not be satisfied with the reposition of the lid, but must endeavor to restore also its natural movements. The solution of a suitable substitute for the lost lidskin is, therefore, of paramount importance; it should be of a thin and light material like the normal lidskin, so as to adapt itself readily to the configuration of the lid and not to handicap its movements by weight or inflexibility. It is evident that flaps consisting of thick integument taken

from the frontal or temporal region, or from the arm, are not the proper material; they make the lid so thick and heavy that the levator muscle can lift it but insufficiently. You will always find such lids to look unnaturally full and drooping.

But skin flaps of this kind have been and still are used frequently because it is the common belief the cicatricial skin usually found in the immediate vicinity of the everted upper lid could not be used for plastic work. I have, however, convinced myself in a number of instances that this cicatricial skin can be so used, and that it is the best substitute to replace the lost lid skin. The operation is performed as follows:

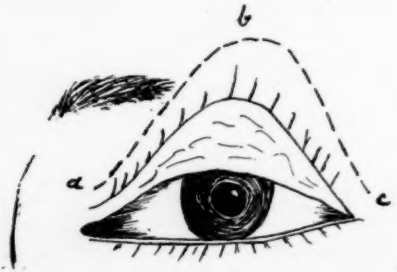


FIG 5.

A curved incision *abc* is made into the cicatricial skin above the everted lid to outline a large flap which is carefully detached from the underlying tissues all the way down to the lidborder with which it is left connected. The lid itself is then released from all cicatricial adhesions and brought down in its normal position. The skin flap is now spread out over the lid surface and its margin fixed to the upper border of the cartilage by the necessary number of sutures. The large wound (*abc*) above the lid can be covered in two ways; either we can slide a flap over it from the temporal side (as outlined in fig. 6) and unite its margins with the skin margins *ab* and *ac*, but not with the cartilage; or we can fill out the whole wound with Thiersch's grafts.

The method I have here described, of covering the replaced lid with a cicatricial skinflap has several great advantages. It supplies the lid with a new skincover which

as I have pointed out before, in lightness, smoothness and flexibility comes nearest the normal lidskin, and like this

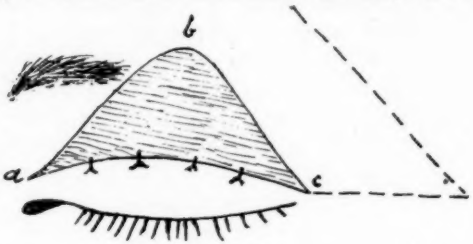
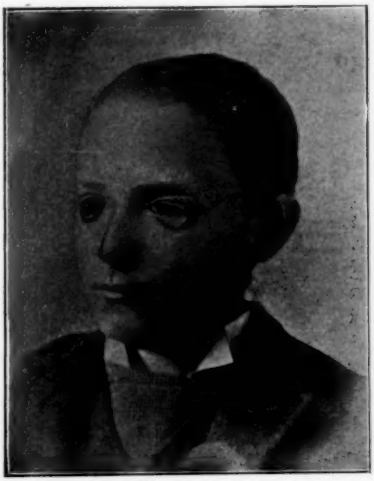


FIG. 6.

follows readily all the movements of the lid. Its greatest advantage, however, consists in the firm union established between the lid skin and the upper border of the cartilage. This union makes it impossible that any tissue changes and shrinkage which may take place in the skin grafts implanted upon the wonnd above the lid can exert any traction upon the lidskin and the lidborder; *it therefore securely pro-*



No. 1.

No 2.

tects the lid against re-eversion. How perfect results can be obtained by this procedure you may judge for yourselves by looking at these pictures of one of my cases, showing the

condition of the lid before and 4 months after the operation.

I think this operation could be employed in the majority of cases of cicatricial ectropium; for the only condition which would make its application inexpedient is the presence of the eyebrows making it impossible to cut the skin flap large enough without including a bunch of hair. But this condition seldom exists, because the tissue destruction leading to these complete eversions of the upper lid, usually involves the region of the brow to such an extent that a small portion only, if any, is preserved.

If this operation connot be employed, I would recommend to you as the next best plan to sever the lid from the cicatricial skin by an incision made closely along its border and after the reposition of the lid, to cover the whole wound with Thiersch's grafts. To guard against these grafts being disturbed during the healing process the lid must be rendered immobile by a few ligatures passed through the lid border and securely fastened to the cheek by plaster strips.

The grafts are most conveniently cut from the arm, tranported on the razor directly to the wound and spread out on it. When the whole wound is well covered with these skin shavings narrow strips of oiled silk are laid over them cross-wise, and upon this protective network a compress wet with salt solution (½ per cent) and finally a bandage on *both* eyes to insure absolute rest of the lids for four days.

By this time the grafts are firmly adherent so that you may dispense with the bandage and the ligatures.

The use of cicatricial skin flaps or Thiersch grafts solves the problems presented by these ectropium forms better than any other operative procedure; and as either of them is always practicable you will have no occasion ever to resort to any of the various skin tranplantations invented and practised in the pre-aseptic period of surgery; and there is no need for me to describe them.

Gentlemen, I thank you for your kind attention.

PARESIS OF OCULAR MUSCLES, PRECEDING VISIBLE SEPTIC INFECTION OF TONSILS FROM WHICH IT ORIGINATED.

By Gustav Fütterer, M. D.,

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George K., a gentleman of 42 years of age, who has been under my care for some years past, had enjoyed a long period of perfect health, when on the twentieth day of December, 1895, he commenced to feel feverish; his temperature that day varying between 99½ and 100. 3°. He also complained of a pressure in his head and of some headache, a condition which remained about the same, the temperature several times rising to 102° until the 28th, of December, when double vision appeared. During this time I saw the patient daily, but the most thorough examinations failed to reveal the cause of the above mentioned symptoms. I then referred the patient to Dr. J. Elliott Collburn who kindly furnished the notes referring to the condition of the eyes. On the 2nd of January, 1896, Dr. Colburn reported: "O. D. marked flushing of the nasal side of the disc, most prominent at the lower side; flushing of entire nasal and lower portion of the retina; arteries enlarged and slightly tortuous; V. $\frac{20}{60}$; total loss of color sense for red lower and contracted for yellow, white and green about normal. O. S. slight flushing of nasal side of disc;

no change in arteries; small central red scotoma, field otherwise normal; pupil normal in reaction: paralysis of the external rectus of the right eye; extreme abduction, only drew it to 2mm. of the median line."

During all this time I felt considerable apprehension about the nature of the trouble, the more so, as the patient five years ago, had a tubercular affection of the apex of the right lung, with tubercle bacilli in his sputum. He had recovered from tuberculosis entirely, but as I was at a loss how to explain the symptoms, I feared that a tubercular basal meningitis or a solitary tubercule might be at the bottom of the present condition. I therefore felt much relieved, when on the morning of January 8th, the patient complained of sore throat and on his left tonsil could be seen a whitish membrane, laying in a furrow, which ran in a vertical direction, measuring about two ctm. in length and four or five mm. in width. There was no exudate on the surface of the other tonsil, nor on any other parts.

I took some of the membrane and brought it on different media into culture tubes, with the result that in the incubator streptococci, staphylococcus aureus and staphylococcus albus were cultivated. Loeffler's bacilli were not found. Right after caring for the bacteriological examination, I treated the diseased tonsil with a disinfectant and then injected 1000 units of Behring's antitoxin. At three o'clock in the afternoon the patient's temperature was 101. 4°, at eight o'clock in the evening he had a severe chill, the temperature then being 103°, and at eleven P. M. the thermometer registered 103. 6°. On the next day, the 9th, of January, the temperature ranged between 100. 6°. and 102° on the 10th between 99° and 101. 2°,and on the 11th, between 97. 6° and 99. 4°. Then it became normal. On the evening of the day on which the membrane had been discovered on the right tonsil, the exudate had spread so rapidly that both tonsils had become covered with it. On the 12th, of January all exudate had disappeared, On the 13th of January the patient went to his business and after a few days more, the headache had also disappeared entirely. On the 15th, of January Dr. Colburn reported: "Paralysis of the right abducens more marked, slow action of levatores palpebrarum, with hesitation of the superior rectus."

On the 23rd, of January the temperature again rose, ranging between 100° and 101. 4°, while the eye trouble increased, both eyes becoming affected and severe headache set in. This condition continued until February 1st. when another tonsillitis made its appearance which was accompanied by very severe headaches and much increase of the eye trouble' The right eye almost became closed. Diminished sense of taste and paresis of both right extremities· This state continued for about a month, only the exudate on the tonsils disappearing after a few days. No antitoxin was used this time. The temperature ranged between 99 and 101° for the whole month and the headache, which could not be relieved, became unbearable. There was a severe pain behind the right ear and a deviation of the tongue to the right side. On March 17th, I ordered extractum paulliniæ sorbilis fld. (Guarana) and extractum ergotæ fld. in equal parts, a teaspoonful to be taken in water three times a day, and immediate relief followed. The patient continued to take this mixture for two weeks, when the headache had disappeared entirely. On the 10th, day of February Dr. Colburn reported as follows: "Complete paralysis ofall the muscles, governed by the right third, and partial paralysis of the left abducens. Headache, confusion of vision and rotation of the image of the left eye; partial paralysis of the throat muscles and deflection of the tongue. From the date of last infection, the paralyzed muscles have slowly regained their activity, and are now performing their function almost perfectly."

Until the 23rd, of March the patient improved steadily, having normal temperature right along. Then came a third attack of tonsillitis, which lasted for three days without however increasing the eye trouble. After this attack Dr. Colburn reports: "The fundus has become perfectly normal, the color sense returned and binocular vision for most of the ranges obtained. The treatment of the paralyzed muscles has been faithfully carried out from the beginning."

At last some rheumatic pains appeared in the extrems ities and a lumbago developed with very severe pain, which could not be relieved with salicylates in large doses-

massage electricity, or other remedies, but after several weeks, of suffering almost instant and complete relief was obtained by administering 120 grains of iodide of potash daily, together with an infusion of folia jaborandi 4.0: 150. 0 taken daily at one dose. No specific history. Our patient is now perfectlly well and but slight disturbance of abduction of the left eye and equally slight disturbance in the function of the right superior rectus are the only abnormal conditionwhich remain.

In conclusion I would say, that the septic material which caused the first ocular disturbances was enclosed in some crypts of the left tonsil for several weeks and without causing any visible changes in the tonsil, it could cause such far-reaching effects. As soon as the crypts open up, the microorganism could multiply in a few hours, they caused the formation of an exudate which covered both tonsils. This fact certainly makes our case very instructive especially when we also remember the severity and multiplicity of symptoms. particularly the lumbago. which no doubt has been caused by those infections that entered by way of the tonsil.

CASE OF DOUBLE PERSISTENT HYALOID ARTERY.

Illustrated.

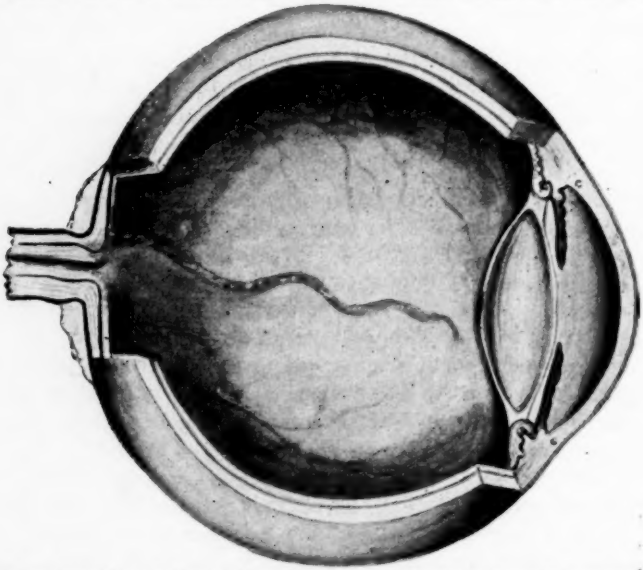
By Joseph A. White A. M. M. D.
of Richmond Va.,

Prof. of Ophthalmology in the University College of Medicine.

Mrs. P. P. of Petersburg, Va., consulted me on March 21st, 1895 complaining of pains in her eye, with some difficulty in seeing. The pain was constant and nausea was associated with it if she attempted any eye work. She said her vision for distance had been gradually getting worse for a long time, becoming more near sighted, as she expressed it. The refractive examination showed that she had compound myopic astigmatism; the vision of the right eye with–4.50 D ⊃ –0.50 Dc axis 15° was $\frac{20}{30}$; that of the left eye with–5 D ⊃ –1.25 Dc axis 165° was $\frac{20}{30}$. Her eyes were slightly painful to pressure and irritable to light. She had an exophoria at 18 inches of 6°. With the ophthalmoscope I found congestion of the retina and optic nerve with slight posterior staphyloma. My attention was also directed to a waving opacity in the vitreous similar to the strings found in choroidal trouble and cyclitis but longer. Her eyes being so irritable I did not press the examination to decide what it was. I ordered absolute rest, leeches to the temples and dark glasses. In three days she was much improved. She followed these directions for two or three weeks, when she had good use of her eyes.

I saw her again April 2nd, and April 18th. On April 2nd, a careful examination with the ophthalmoscope

showed that the supposed floating opacity of the vitreous was attached in each eye to a branch of the central artery of the retina just at the edge of the optic nerve, and was free at its distal end. There was a very faint spot at the posterior pole of the lens. I concluded that I was dealing here with persistent hyaloid artery in each eye, but I was not able to decide positively whether the vessel was patulous, and filled with blood or not. I am confident that in earlier life the vessel was attached to the distal end of the



[The dotted line indicates the enlargement of the globe from the myopia.]

lens as well and was broken loose by the gradual increase of the myopia, which resulted in an elongation of the eye ball, causing stretching and finally rupture of the vessel. This case is one of special interest for the above reason on the one hand, and because it is so very rare to find persistent hyaloid artery in both eyes. There are many cases on record of this anomaly in one eye. I cannot find any mention of a case similar to this, except one double-sided persistent hyaloid artery reported by Dr. Kipp in the Archives of Ophthalmology and Otology, volume 3 page 70. Wecker-Landolt's Treatise on Ophthalmology (Vol. 2,

page 572) refers to this case as a unique one Dr. Noyes on page 513 in the last edition of his book says, "I have seen it in both eyes"; but I am not able to discover where he reported the case.

THE PRISMATIC PERIMETER.*

By Joseph E. Willetts, M. D.,

of Pittsburg, Pa.

late clinical assistant to dr. knapp, new york. executive ophthalmic surgeon to the eye and ear hospital of pittsburg, pa.,

Illustrated.

The importance of determining the visual acuity of the peripheral portions of the retina, is fully appreciated by the oculist. The visual field may be defective with respect to all or any of the senses of form, color or light. As the nature of such defects often constitute important data upon which to base a diagnosis and prognosis, of the accurate testing of the visual fields should have an important place in the subjective examination of the eye. Peripheral vision may be defective in continuity or in acuity; often there is a defect in both respects at the same time. But besides regular interruptions in the continuity of the field of vision, there may be irregular breaches in continuity, *i e* more or less blind portions surrounded by normal or relatively normal portions of the field, to which the name *Scotomata* has been given. There is scarcely any intraocular disease which is not accompanied by changes in the visual field. Thus, in optic atrophy, we have a concentric contraction of the form and color fields. In glaucoma the contraction of the field is quite characteristic of the disease. First the inner, and then the upper and lower portions of the field begin to contract, and this contraction gradually extends toward the centre of the field. In retinitis pigmentosa, there is also a contraction of the field,

*Read before the State Medicla Society of Pa., May 20th, '96.

which is most characteristic of the disease. Here we find concentric limitation of the field, which involves all the peripheral portions equally, often leaving comparatively good central vision, even when the disease is well advanced. In detachment of the retina the perimeter aids us not only in determining the extent of the detachment, but also in the prognosis. In the various forms of hemianopsia and toxic amblyopia, due to tobacco and alcohol, the perimeter is valuable; for, by it, we are enabled to discern a central scotoma for colors, which is pathognomonic of these affections.

Hirschberg believes that a differential diagnosis between tobacco-amblyopia and alcohol-amblyopia can be established by the location and form of the scotoma. In alcohol-amblyopia the scotoma is "peri-central" *i e*, it lies about the macula; whereas, in the tobacco-amblyopia it is "para-central" being more distinctly oval in shape, and extending from the macula to the blind spot. The time limitation for the reading of papers, does not permit me to go into the detail of the various perimeters, except to say that they are all one and the same thing, that is, modifications of the same principle. Considering the importance of the results to be obtained and being cognizant of a fault, I think it well to look at this instrument a little more carefully and find wherein the fault lies, the one presented being the one in general use. It is a gruesome, mysterious looking affair, consisting of an arc and chin rest, and compels the patient; as well as the operator to assume an unnatural, restrained position, for a length of time varying, according to the intelligence of the patient or the perception of the operator, and gives results which look exceedingly scientific and add greatly to the appearance, if not to the worth of reprints. The patient is seated in front with the chin in the rest provided for it, and, one eye being covered, he is directed to gaze steadfastly at the stationary disc which should be in a direct median line with the eye of the patient, but it is not in this instrument. The top of this projection, which acts as a director, is on a median line with the stationary disc which seemingly is but a small matter but in reality is one of material importance. As it is now, the patient is forced to rest the margin of the

lower lid against it, which sets up a blepharospasm, causing a constant changing of position and a restriction of the inferior field. If the chin-rest is raised then the antero-posterior axis of the eye is above that of the disc, which adds to the unreliability of the results.

To be scientifically consistent with the laws of physiological optics, the field of vision should only be taken after the error of refraction has been corrected. Just what part high degrees of hypermetropic astigmatism and other forms of ametropia would play in the conjugate focus or deviation of rays, I can not say, but think it capable of mathematical demonstration. Considering that the field of vision is always taken without the error of refraction being corrected, and considering the fact that it is impossible to take the field of vision with this instrument after the error has been corrected, on account of the rim of the glass interfering with the vision, together with the fact that the result of the examination is modified or dependent on the personal equation of the patient, whose position and surrounding are not such to facilitate quick perception, the practicability of this instrument becomes questionable. What can we expect of this instrument with uninstructed patients, where the operator must rely on the personal equation of the patient, and his own ability, not only to approximate the degree on the unmarked portion of the perimeter, but also to approximate how much of the field of vision is cut off by an unusually high nasal bridge, a prominent brow, or a malar bone? How is this approximation of restricted field from a prominent feature made? Is it computed by figures? Is there a known amount of restriction of the visual field for each mm. of prominence of individual features above normal? No; the result is accepted regardless of personal equation, the physiognomy, or the position of the patient, and an approximate allowance made for the numerous inaccuracies of which the position of the patient is not a minor one by any means, especially in those cases of a neurotic type—cases of hysteria in which we are called upon to take the field of vision, and where the patient does not remain in the proper position. In such cases the forehead may be inclined forward, with the eye close to the projection in a straight line with the stationary disc, thus giving the field

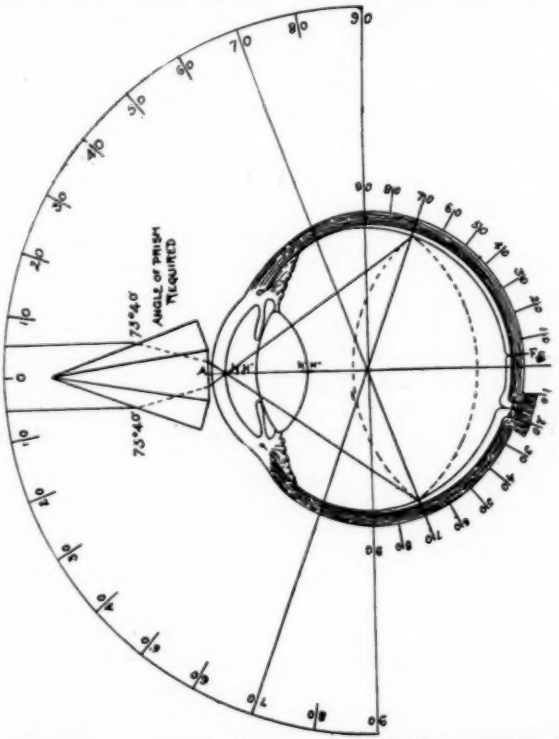
a wide scope in one meridian; while in the next meridian, the chin will be thrust forward, and the eye drawn backward, and the inferior field greatly restricted, to say nothing of the patient's inability to control the tendency to look at the moving disc instead of the stationary one which also materially adds to the unreliability of the results obtained.

Disregarding these trifling objections, it has other disqualifications which practically removes its only advantage, that of chart producing, by which we may keep a record and reproduce it if desired, and I feel free to say that these are about the only cases in which it is used. For office practice the field is taken by having the patient fix his eye on that of the operator, and bringing the finger in from the periphery in the various meridians, and is just as accurate, and just as scientific, and can be accomplished in the time necessary to get the perimeter ready; but there are no means by which the result can be expressed. The perimeter gives a method of expression, but an imperfect one, and in proof of this statement, I ask any one to show me ten fields of vision, any two alike, taken from the same patient, under any condition. This extreme variation of result is dependent on the objections named and also on conditions. The most important essential requisite for the accurate testing of peripheral retinal functions is light; not reflected light but a certain light stimuli which must be accepted and used in all perimetric examinations, in which the result is to be reported, otherwise the chart reproduced, conveys no meaning, and is valueless; for if the same field be taken by another observer, a different result would be obtained, and if taken by a third observer, still another result would be obtained, dependent not on the operator but on the amount of light obtainable in his office and the cleanliness of his discs. Taking into consideration the different theories of the color senses as to whether they be true or not, no color can be recognized in a dark room, and the restricted color field as shown to-day, is not so much dependent, to my mind, on the retina not being able to perceive the various colors, on account of the colors themselves, as it is on the degree of luminosity. A bit of card board of any color run in from the periphery is

recognized by the patient, not so much by the action that the individual color plays on the retina, as the rays of light reflected from it. The darker the color, the more rays absorbed, and the restriction of the field for white even, as shown in hysteria, may be dependent on a dirty or mottled peripheral disc, rather than retinal inertia. While the contraction on the nasal side is tacitly understood to be dependent on the physiognomys Fuch (on Page 23, Fig. 13, which shows the projections of the visual field,) says that the anterior border of the sensitive portion of the retina, extends further forward on the nasal side than on the temporal, in comparison as 65° is to 90°. This is not so. Both sides are equal there being no difference in the retina of either side, it being histologically the same, and this is one of the many errors which have grown from the results of the present method of perimetrical observation. To the physiognomy most of the blame can be laid for the contraction of the nasal side, and the balance of the blame to that instrument, based on hypothesis alone, the perimeter, an instrument devised for the exploration of the field of vision, which, instead of endeavoring to enlarge the nasal contraction caused by the physiognomy, further increases ie by bringing its objective point inside the point of infinity to 15 in, when all rays that enter the eye must enter as divergent rays, thereby causing a restriction of the whole field to the extent of 0.57′ of the nasal as well as the temporal side. But not satisfied with this, it further constricts the nasal field 6° 38′ by the convergence dependent on the compulsory accommodation for so near a point and adds the 6° 38′ subtracted from the nasal to to the temporal field, which constitutes another error. This is easily demonstrated by holding the finger 15 inches from the face and then fixing the eye on a distance (20 feet) beyond it. *When the distance between tht two fingers will represent the angle, in other words, any instrument that shows a contraction of the normal field of vision for the form, or color sense, is wrong, for no such contraction exists.* Granting these objections to be true, which they are, I say without any hesitancy, that the perimeter is not only *unscientific* and *impracticable*; that it is not only *improbable*, but *impossible*, its total being nothing but *ap-*

proximated guess work, its results being not only valueless but meaningless as well.

Recognizing that the unsatisfactory statements of the patient materially influence the result, that there must be an approximate allowance made in each case for the personal equation and for the constantly varying physiognomy, and that the time and inconvenience necessary for



Authors descriptive PLATE I. Illustrating the m*odius operandi* of the prismatic perimeter.

a conscientious examination of the visual field are decided objections, I endeavored to construct, or combine a number of prisms or cones, which would transmit or refract rays of light to that part of the retina corresponding to the degrees in the present perimetrical chart. To make the result correspond as nearly as possible to the present ac-

cepted ellipsoid, color and form field, as the perimeter gives it to us, it would be necessary to have prisms of different strengths combined in a whole. On this principle I had an octagon ground. Recognizing later that this shape would be expensive and the results inaccurate, I constructed a cone-shaped hexagon, having all prisms of the same strength. Thus, a cone or cone-shaped hexagon with its sides cut at an angle 73° 40′ made of flint glass with an index refraction of 1,584, will throw six lights at the same time on the retina at the angle corresponding to 70° as taken by the perimeter. See another discriptive plate no. 1. That this is capable of mathematical demonstration the following formulae show, for which I am indebted to Prof. James E. Keeler, of the Allegheny Observatory of that city.

Formulae for a Prism in the Position of Minimum Deviation.

Let n = index of refraction
A = angle of prism
d = min. deviation

To find d,—$\sin \frac{1}{2} (A+d) = n \sin \frac{1}{2} A.$

To find A,—$\cot \frac{1}{2} A = \frac{n - \cos \frac{1}{2} d}{\sin \frac{1}{2} d}$

Formulae for a Prism when the Incident Ray is Perpendicular to the Second Face of the Prism.

Let n = index of refraction
A = angle of prism
d = deviation

Given A to find d.

$$\sin r = \frac{\sin A}{n}$$

$$r' = A - r$$

$$\sin d = n \sin r'$$

Given d to find A.

$$\sin r' = \frac{\sin d}{n}$$

$$\cot r = \frac{n - \cos r'}{\sin r'}$$

$$A = r' + r'$$

Example:—n = 1,584, A = 75o, to find d

log sin A - - -	9.9849
log n - - - -	0.1998
log sin r - - -	9.7851, r = 37° 34′

$r' = 75° - 37° 34' = 37° 26'$

log sin r' - - - 9.7883
log n - - - 0.1998

log sin d - - - 9.9836, d = 74° 21'

Example:—n = 1.584, d = 75°, to find A

log sin d - - - 9.9849
log n - - - - 0.1998
sin r' - - - 9.7851, r' = 37° 34'

n = 1.5840
Nat cos r' - - - = 0.7926

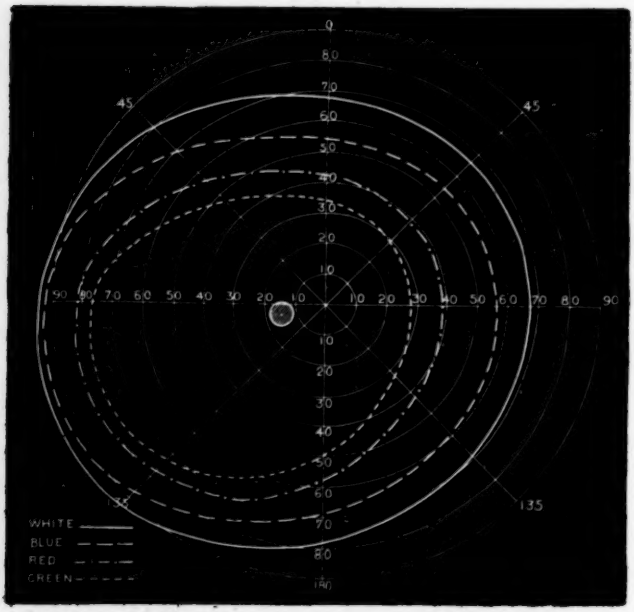
n— cos r' - - = 0.7914,—log 0.7914—9.8984
log sin r' —9.7851

r = 37° 37' log cot r —0.1133
A = 37° A34' + 37° 37' = 75° 11'

The highest degree prisms used in the prismatic perimeter is one of 73° 40' which under all conditions regardless of the physiognomy, transmits images to 70 degrees on the retina, not counting the distortion of the image, which is equal to five degrees more, so if a patient see six lights with this combination of prisms after a slight rotation of the hexagon, or without rotation of the cone, it is primae facie evidence that not only the field of vision is normal at the angle of 75° for all meridians, but also that the color sense for red is normal at that angle. A row of incandescent lights, green, blue, yellow, or any of the complement colors, can be successively turned on, and the field and color sense for that angle established decisively in an instant. Plates in text-books showing 55° to 60° to be the normal for white of the superior, inferior and temporal portions of the retina are misleading, and certainly are not correct any more than the plates showing restricted color field are. (See plate 2.)

The prismatic perimeter has demonstrated satisfactorily that there is no restriction of the normal field for any color or any object. The present restriction is not due to the inability of the retina to receive impressions at its periphery, but entirely to out-side influences—the physiognomy,

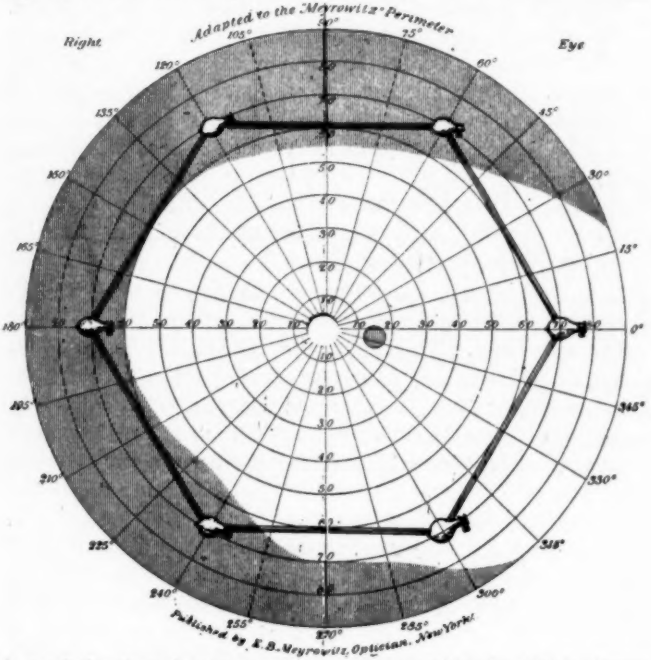
and the crude instrument by which the field is taken. All colors are recognizable with the prismatic perimeter at the periphery of the field, as well as inside of the color field,



Inaccurate delineation of the form and color sense as taken by the old perimeter. PLATE 2.

as at present recognized. That it is not so plainly seen at the periphery is partially due to the fact that to deflect an image to the 70° angle on the retina the rays cannot pass through the angle of minimum deviation of the prism and thus transmit a clear image of the object; but instead a distorted one is transmitted to the retina. If it were possible to throw an image which was not distorted on the periphery this would be very distinctively seen. That this is a fact is proven by directing the visual axis to one of the false images on the periphery, which necessarily causes it to fall on the macula. If its distinctness on the periphery were due to the insensibility of the retina, it should be distinctly seen when focused on the macula, which it is not,

showing that this indistinctness is due todistortion alone. If the 73° 40′ hexagon, or a cone of the same degree be placed before the patient's eye, the other being covered, and he can see no light, there is a concentric contraction inside of the 70° angle which indicates optic atrophy or retinitis pigmentosa; while in glaucoma, corresponding to the nasal contraction, there will be but three lights, or a broken light with the cone. If one be missing,



A rough drawing of the retinal images, as seen with the higher degree hexagonprisms.

some localized lesion, and if the color be not recognized, the pathological condition is readily understood. The lights are thrown on the retina in the shape of a hexagon, with a band of colored light connecting each individual light at different degrees of deviation, according to the strength of the prism or of the cone used.

The light can be thrown on the retina in a practical way at successive angles fo 70°, 60°, 50°, 40°, 30° 20° and 10° is demonstrated by the formulae given.

The following shows the angles of the prisms required to give the necessary deviation when made from flint glass, with an index refraction of 1,584:—

☞ Given deviation.	70°	60°	50°	40°	30°	20°	10°
†☞ Angle of prism required.†	73°40′	69°21′	63°13′	55°8′	44°50′	32°2′	16°49′

The error decreases in ratio to the strength of the prism.

The hexagon has the advantage over the cone because it tells us not only of the presence of a lesion, but also of its extent. For example in detached retina, after putting on the hexagon, one light is found missing. The hexagon should be slightly rotated until the patient sees the missing light, and the point of its reappearance noted as well as the site of the disappearance of the one following it, which gives us positive evidence of the extent of the detachment for future reference.

As is well known, the objection to the use of high-degree prisms in ocular work has heretofore been the prismatic spectrum. This spectrum, which has been previously an objection, is, in the prismatic perimeter, used to an advantage; for, in the higher degree, it is sufficiently pronounced to be used as a color test, as it has all the necessary colors, and I have demonstrated in the clinic of the Eye and Ear Hospital that the individual colors are recognized by the patient.

It is scarcely necessary to dilate on its efficiency as a confusion test in simulated blindness. If a patient be made to see six lights, the angle of which may be changed at the will of the operator, he naturally will not know what to expect in subsequent examinations.

The prisms must be accurately ground, all the six faces of the hexagon being exactly alike and of the same angle so that we may have undisputed facts from which we can definitely express results found for the report of cases. In the higher degree prisms, the rays striking the apex of the prisms are lost, being deflected out of the prisms before they reach the cornea, so that during the examination when the prism is held close to the eye, the patient sees a semi-opaque circle or diffusion of dispersed and reflected

rays making their exit, which, contrary to the natural supposition that it would annoy and confuse the patient, is really a valuable adjunct instead of an objection; for it is these rays that exclude all other objects, such as furniture, hangings, etc. which have a lesser light stimulus than the objective light used in the examination, thus cutting off many multiple objects that would only tend to distract the patient, much the same as the moving disc on the old perimeter does, and make the practical application of the prismatic perimeter *nil*.

The prisms are cemented to a piece of plain glass and enclosed in a brass tube of a dead black finish, which has been done for the protection of the prism, for convenience of handling, and to overcome the blepharospasm caused by the closeness of the prism to the eye. The prism is set in about an eighth of an inch and the rim of the tube holds the lids open. The tube is marked on the end containing the prism, with degrees similar to the trial frame, so that when it is placed to the patient's eye, with the 90° mark on the tube corresponding to the vertial meridian of the eye, then we know exactly what position the lights are in on the retina and if one be missing we can tell at once what meridian of the field is affected and this may be expressed figures instead of unreliable charts.

The objective light is inside the point of infinity, when this higher degree hexagon is used, which causes an error of 0.57′ which is overcome by placing a convex lens in the other end of the tube, which causes the rays to become parallel and also protects the prism from dust etc.

The problem that was of paramount importance in the conception and construction of this instrument, was not only the securing a proper combination of prisms with the proper powers of deviation but the practical application of the principle. The possibility that a thing might be otherwise, is no proof whatever that it is not so. The test of a theory is, first, that it shall not be directly contradicted by any facts, and secondly, that the preponderance of probabilities in its favor shall be sufficiently great. But as long as there remain any negative evidence it remains a theory. That these rays do strike the retina at the angle declared

has been proven by mathematical deduction, with no negative results, and consequently it is a produced fact, of

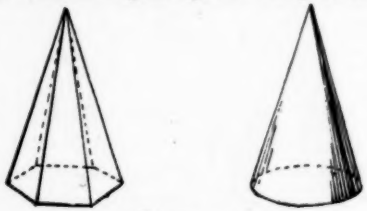


PLATE. 4.

Showing authors cone and hexagon-prism, consisting of six prisms, cut at an angle of 69 per cent. combined as a whole.

practical application, and as such it is presented. (See plate 4.) The instrument is manufactured by the Wallace Optical Company of this city.

To recapitulate; the objections to the old perimeter are,

First, the high projection which alters the whole field.

Second, that the objective disc being inside of infinity causes a contraction of the whole field of 0.57'.

Third, that through the compulsory convergence dependent on the accommodation for so near a point there is constituted an error of 21° 21'.

Fourth, restrained position of patient.

Fifth, personal equation of patient.

Sixth, time required for examination.

Seventh, uncertain or unknown light stimuli used, which in itself invalidates the result.

Eighth, the results are of no scientific value, being devoid of meaning.

The advantages of the Prismatic Perimeter are: *First*, a standard light stimuli for all observers.

Second, that the form and color sense can be taken at one time.

Third, that the whole field canbe taken in a few minutes.

Fourth, that the results are absolutely reliable and indisputable, being demonstrable mathematically, and independent of the physiognomy.

Fifth, that the findings of any observer can be quickly and accurately recorded in a manner at once intelligent to

any one familiar with this method of taking the fields.

Sixth, it does not depend on reflected light of varying intensity.

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THE DISCREPANCY BETWEEN THE ASTIGMATISM AS SHOWN BY JAVAL'S OPHTHALMOMETER AND THE TOTAL ASTIGMATISM BY TRIAL LENSES.

By Charles H. Williams, M. D.,
of Boston, Mass.

In most of the recent American text books on ophthalmology the use of Javal's astigmometer is highly recommended, and one author, referring to the total astigmatism as found by this instrument and by trial glasses, states that "any important discrepancy very seldom exists."

Undoubtedly Javal'sinstrument is a great time saver and should be used in the routine examination of refraction cases, for it will in the majority of cases point out the axis to within five degrees, and the difference in the refraction of the two principal meridians to within a dioptric, but it cannot be relied on as more trustworthy than other methods of examination except so far as the corneal curvature alone is concerned.

To give an example of its use in private practice where the cases have been examined with great care. I have taken one hundred cases of astigmatism seen during the past three months, in which there was no complication of disease of the cornea, lens or deeper parts, and in which the vision was more than 0.5 with glasses. This limit of acuteness of vision was taken in order to exclude those cases where the sight was so imperfect that they do not distinguish between small changes in the position of the axis of the cylindrical glass with any degree of certainty.

In comparing the results by Javal with those from trial lenses I have considered a variation of not more than five

degrees in the position of the axis, or of less than half a dioptric in refraction, by the two methods, as practically alike, as this does not exceed the chances of error in comparing one method by another.

In all these cases only the astigmatic portion of the refraction is considered, that is, the difference in the refraction in the two principal meridians.

On the above basis these cases showed that:

Axis and refraction were alike by Javal and trial glasses in - - - - -	36 per cent.
Axis alike but refraction different in - -	13 per cent.
Axis different but refraction alike in -	18 per cent.
Axis different and refraction different in -	7 per cent.
Astigmatism shown by Javal but no glass accepted in either eye in - - -	13 per cent.
Astigmatism shown by Javal but no glass accepted in one eye in - - - -	9 per cent.
No astigmatism by Javal but cylindrical glass accepted in - - - - -	4 per cent.
	100 per cent.

From the above it would appear that in 49 per cent. of these cases the position of the axis as shown by the two methods was about alike; when the axis was different and the refraction alike there was a variation of 10° in six cases, of 15° in two cases, of 20° in four cases and of over 20° in six cases; where the axis was different and also the refraction there was a variation of 10° in five cases, of 20° in one case and of 35° in one case.

In the cases where the Javal showed an astigmatism but no cylindrical glass was accepted by the patient there was a difference in the refraction of the two principal meridians as given by the Javal of one half a dioptric in 13 cases, of three quarters of a dioptric in one case and of one dioptric in 8 cases; again where the Javal showed no astigmatism but a cylindrical glass was accepted, the refraction of the cylinder was one half a dioptric in 3 cases and three quarters in one case. Where the axis was alike but the refraction varied, there was an extreme variation of not over one and a half dioptrics, and where both axis and refraction varied the range of refraction difference did not exceed one dioptric.

In this small series of cases of uncomplicated astigmatism Javal's ophthalmometer gave the position of the axis of the cylindrical glass in about 50 per cent. of the cases to within five degrees of the position which was finally accepted by the patient, and the number of cases in which the difference was greater than ten degrees was very small; also the astigmatic refraction was given by the Javal to within one half a dioptric of the accepted glass in 54 per cent. of the cases, and the extreme difference did not exceed one and three quarter dioptrics, and was generally less than one dioptric.

In a majority of cases Javal's instrument gives a most useful and rapid means of determining approximately the position of the axis of least and greatest refraction, and the difference between these axes in refractive power, it will, however, not do to rely upon it too exclusively. It is not a sufficient objection to its use to say that its readings need verification by other tests such as trial glasses, skiaskopy and the ophthalmoscope, or that we must use other means to determine whether the refractive conditions are due to myopia or hypermetropia. My instrument was made by Goubeax, of Paris, in 1889, but I have had several changes made in it from time to time to increase its effectiveness. The axis has been made horizontal as in all modern instruments; the large figured disc behind the mires has been discarded and in its place a disc of thin brass one foot in diameter has been attached to the fixed portion of the tube that carries the double refracting prism. On the side of this disc next the observer is a large and carefully graduated scale from which the position of the arc and mires can be read off by means of a pointer attached to the movable part of the tube. The disc is perforated above the centre so that the instrument can be quickly directed toward the eye and is blackened on the side next the patient to form a background for the mires, these can be easily reached and adjusted in any position of the arc, at the same time the disc is large enough to serve as a protection to screen the observer from the four 32 candle power incandescent lights that are attached to the head rest and give a good illumination of the mires in all positions.

A CASE OF THROMBOSIS OF THE CENTRAL RETINAL VEIN.

By T. A. Woodruff, M. D.,
of Chicago.

Illustrated.

R. W. S.—Age 48 book-keeper always had perfect vision until February 1st, 1896, when on getting out of bed in the morning he complained of a cloudiness before his left eye so that he could not see distinctly. His vision cleared up somewhat at the end of one hour and a half so that he did not think much about it during the day. The next morning the cloudiness again made its appearance disappearing in the same manner during the day; this going on for a couple of weeks until the cloudiness appeared during the day and gradually became permanent. There was some photophobia present in a bright light. No history of syphilis or of acute Rheumatism, he having always enjoyed good health, heart normal, urine contains no sugar or albumen, has not smoked for ten years, drinks about one pint and a half of beer a day, family history good, about ten years ago was subject to attacks of dizziness but never fell down, he had a similar attact of dizziness about one month ago when walking along the street.

R V=$\frac{20}{30}$ with + 1 improved $\frac{20}{20}$
L V=$\frac{20}{200}$ with + .1 improved $\frac{20}{100}$

May 11th, 1896, the ophthalmoscope presented the following appearances; the nerve head is greatly swollen to the extent of 4–5 D at the extreme apex. The whole papilla is converted into a rounded creamy colored mass from which spring the retinal vessels. The physiological excavation is funnel-shaped and seems to be tilted towards the nasal side as if the cup were turned over towards the nose. The arteries are small tortuous and covered in places completely with whitish exudation. The veins are greatly distended, less concealed by the exudate but snaky and in some instances increased to

twice their normal calibre. The swollen mass of the nerve head seems to overlie the surrounding retina and to cover an area about four times that of the healthy papilla. There are numerous hemorrhages scattered all over the back-ground but none of them distinctly flame shaped. The choroidal pigment is nowhere distinctly seen, but the whole fundus outside of the pupillary region presents the appearance of the choroidal disease commonly seen in high grades of myopia joined to a well marked collection of retinal hemorrhages with isolated and small de-

posits of pigment. There are no vitreous opacities or disease of the anterior portion of the eye.

The field of vision taken at this date with a 10 mm disc, shows no contraction of the field or any scotomata while,

with a 5 mm. disc the periphery of the field is somewhat contracted. The field of vision has been taken on several different occasions both with a 10 mm. and a 5 mm. white and gray disc each time showing about the same amount of peripheral contraction for the 5 mm. disc and a normal field for the 10 mm. one, and in each case the central vision remaining good.

On June 4th, 1896 The Ophthalmoscope showed the nerve head more distinctly with a clearer view of its margin. The retinal oedema was subsiding and the general appearance of the fundus tending to a more natural color. Vitreous clear and no fresh hemorrhages on the retina.

June 15th, the outlines of the nerve can be made out more or less distinctly, a fresh hemorrhage is to be seen on the lower margin of the optic disc. This was probably caused by immoderate use of his eyes for near work, against which he had been repeatedly warned. A large vitreous opacity is seen, dark in color floating in the posterior part of the vitreous. There is little change in the appearance of the retinal vessels although the arteries reappear in several parts of the fundus more especially in the neighbourhood of the optic disc.

The history of the sudden onset of cloudy vision without any premonitory symptoms together with the changes seen in the fundus with the ophthalmoscope of a neuroretinitis associated with numerous hemorrhages scattered over the back ground of the eye and the dilated and tortuous veins more or less sausage like in appearance, while the arteries are very considerably constricted appearing as mere lines here and there on the fundus, point to some obstruction to the free flow of blood through the retinal veins. From the history of the intermittent attacks of cloudy vision followed in a short time by the cloudiness becoming permanent and not associated with any signs of organic disease of the heart or kidneys leads us to the belief that the trouble had its begining in an inflammatory condition of the coats of the veins, and ultimately the formation of a thrombus at that point imperfect in character and probably situated in the substance of the optic nerve.

The literature of Thrombosis of the retinal veins is not very extensive, showing it to be a disease not commonly met with in this situation.

Of the cases reported of recent date, that by Dr. H. V. Würdemann of Milwaukee diserves special mention as in his case owing to the eye ball becoming glaucomatous it was enucleated and an opportunity given of examining, both microscopically and macroscopically, the pathological changes that had taken place.

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A CASE OF URTICARIA OF THE CONJUNCTIVA.

By S. M. Stocker, M. D.,
DULUTH, MINN.

In the late afternoon of June 7th. I was called to see A. P., a young lady aged about 16, for a distressing affection of the eye. I found the patient lying down with a handkerchief held to the eyes. The history was that after retiring the evening before she had felt a burning sensation in the eyes, which came and went suddenly, annoyed her somewhat, but did not prevent a good nights rest. In the morning the eyes were natural in feeling and in appearance. In the afternoon shortly before sending for me the burning sensation returned, coming on suddenly as before, but much more intensely. There was profuse lachrymation, but no photophobia. The pupils were natural, the ocular conjunctiva uncongested, but the entire palpebral conjunctiva was of a deep red color. The burning sensation had disappeared as suddenly as it came, and this had been repeated several times. Lachrymation was in abeyance during the intervals of relief from the distressing burning. The lids were not swollen, but their external surfaces were slightly reddened; both cheeks were reddened over perhaps one-half their area, and the redness where present was continuous. The forehead was reddened in spots, and these spots had the appearance of ill-developed wheals. There was no complaint of abnormal sensation in cheeks or forehead. I talked with the patient and her friends for some little time, and during my stay the distressing burning appeared and disappeared several times, the congestion remained constant, the only objective change being in the lachrymation.

The patient had returned the evening before from the East, and had passed between 36 and 48 hours on a railway train. Railway travel has for years caused her distress at the stomach, and in order to escape it she had on this trip eaten nothing but crackers. On her arrival she had eaten a hearty meal, eating among other things veal and strawberries, the cause probably of the distress felt during the night. She breakfasted in the morning, went to church, ate dinner, including again strawberries, at 2 p. m. and about 3 hours later was attacked as described above. The treatment was the application of saline solution to the face in case of discomfort, the instillation into each eye of the following solution, to be used *ad libitum*, if the effect was grateful:—

℞	Acidi benzoici	gr. iiss
	Sodii biborat.	gr. viiss
	Aq. dest.	℥i

and the immediate administration of a saline cathartic. A good nights rest followed this treatment, and in the morning there was a complete disappearance of all the symptoms.

Was this urticaria? Inquiry brought out the fact that the young lady had been subject to attacks during her childhood. Everything about the case points to urticaria except the absence of subjective sensation referable to the eruption on the face, and the diffused nature of that eruption. But the discomfort due to urticaria is not always great, and if mild, might readily be overlooked by a person suffering intensely with the eyes. In regard to the latter point it is to be borne in mind that there is a difference in the eruption of urticaria as it appears on the the face and on the trunk. No authority at my hand speaks of a diffused facial eruption, but personally I have to say that I have seen it take this form not only on the face, but on the hands as well. The latter especially I have seen frequently and observed continuously, for an intensely annoying diffused eruption has frequently covered the backs of my own hands at a time when my body presented typical wheals in abundance. In fact in my own case this diffused eruption on the hands is almost always a forerunner of the typical wheals elsewhere.

That urticaria may attack mucous membranes is not, so far as I know, disputed.

THREE CASES OF SKIN GRAFTING IN THE ORBIT.

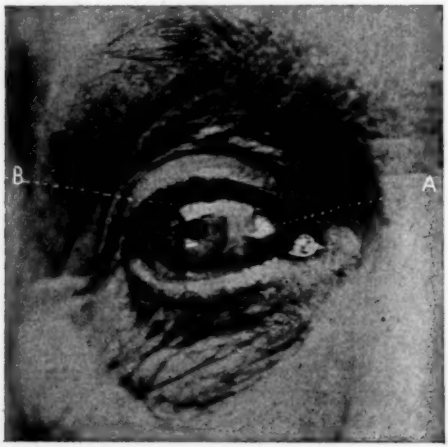
Illustrated.

By. Chas. H. Baker, M. D.,
of Bay City, Mich.

Case I. John W. 69 years of age, had a large pterygium of the right eye which was removed by the writer five years ago. There was very little scar tissue remaining after removal of the growth. The patient's eye remained well for two years when he presented himself with an epithelioma of the corneal margin, on the site of the scar of the former operation, three lines in diameter, a little over half being on the cornea.

A semilunar incision in the sound corneal tissue was made including the growth, and the latter stripped from the deep layers of the cornea with the back of the Graefe knife. The dissection was continued over the sclera, until all the scar tissue remaining from the former operation was removed, leaving a wound half an inch by five sixteenths. A Tiersch skin graft was now shaved from the inner forearm after thorough cleansing of the skin, and transferred to the wound of the cornea and conjunctiva, first carefully drying the wound with absorbent cotton. The graft was smoothed in place with a lens scoop and the eyelids carefully lifted onto it and held in place by a pressure bandage. In twenty four hours the graft was found adherent and at the second dressing the redundant portions were snipped off where they overlapped sound tissue. As the healing progressed the corneal epithelium gradually pushed off the graft which had been fully adherent and when the patient was dismissed, at the end of two weeks, no trace of the graft remained on the cornea and no scaring from the two operations was visible, while the graft in the conjunctiva had shrunken to one fourth by three sixtenths inch in size. At this writing, three years after the grafting, all that remains of the graft is, as seen in the photograph, a comma shaped portion $\frac{1}{8} \times \frac{1}{8}$ inch. half way

from the caruncle to the corneal margin; the scar is invisible, the part of the cornea which was the seat of the



A–Skin graft. B–Skylight reflected in cornea.

epithelioma being as transparent as the rest, while best of all there is no return of the growth.

Case II. Miss T; Has had symblepharon of the left upper eyelid since childhood. The center of the lid was adherent down the sclera and cornea to the pupillary edge. Cornea wholly opaque. She has had two operations previously, one consisting simply in division of the adhesion; the other Arlt's operation combined with drawing together of the lateral parts of the conjunctiva across the space left bare by the dissection of the adhesion. Both failed miserably and in two months after the second operation the condition of the eye was bad as ever.

She came with a request to have the ball enucleated on account of the pain caused by the dragging, but was persuaded to submit to one more attempt to free the lid. The adhesion was dissected loose from the ball, back as far as the bottom of the retrotarsal fold; inverted and stitched in place by sutures passed through the upper margin of the tarsal cartilage and the skin. Owing to the retraction of the conjunctiva the bare portion of the sclera was now three quarters of an inch square, and was covered, after all oozing had ceased, by a Tiersch graft from the arm as described in the previous case. No sutures or any thing but the lid were used to keep the graft in place but there was no displacement and the graft took root promptly.

It is now two years since her operation and she has free motion of the ball nearly equal to that of the sound eye, is entirely free from pain and has far less trouble from it than if she had an artificial eye.

Case III. Mr. M., sixty four years of age, had a growth springing from the middle of the outer third of the tarsal cartilage in right eye upper lid. On eversion of the lid this growth, when first seen resembled granulation tissue springing from a ruptured meibomian cyst, was about three lines in diameter and pedunculated. After being snipped off it recurred in a week and was then removed together with one third of the cartilage, the overlying conjunctiva and the subdermal connective tissue. The growth appeared to be thoroughly removed and to have sprung from a cyst of the cartilage but before healing was complete recurred at the divided end of the cartilage.

It was examined at the pathological laboratory of the University of Michigan and pronounced a rapidly growing angio-sarcoma. A radical operation was at once done, the tissues embracing three fourths of the upper lid, up to the orbital margin, out to one half inch external to the canthus, one third of the lower lid, the underlying fat and orbital connective tissue back as far as the equator of the globe were removed and a flap brought down from the temple to form a new lid. The shrinking of the conjunctiva left bare a good part of the upper half of the globe to come in contact with the raw under surface of the flap. This would necessarily cause an extensive symblepharon and accordingly a large Tiersch graft was inserted between the flap and the eye ball and applied to the raw surface of the flap. The latter acted as a normal lid would as a splint and kept the graft in place. It grew kindly and kept the surfaces apart until completely healed resulting in comparatively free motion of the ball, which daily grows freer. It is now over a year since the last operation was done and there is no recurrence of the growth. The Tiersch graft has been largely replaced by mucous tissue from the conjunctiva and the partial anchylosis of the ball which existed after the operation has nearly disappeared.

These cases serve to illustrate the benefits to be derived from Tiersch grafts in otherwise desperate conditions. In the first case the graft sealed the wound from the entrance of atmospheric germs and by prompt union materially hastened the healing process, and it is well known that slow healing is a fruitful cause of immediate return after removal of maligant growths. The permanence of the result certainly shows the wisdom of the procedure.

It was peculiarly interesting to watch the way in which the intruding foreigner was pushed off by the native epithelium after having become firmly united and also the repeated exfoliation of surface epithelium from the grafts. The flakes were often the full size of the grafts and came away leaving the latter as brilliant as an ophidian after its annual slough.

In case two the best recognized treatment had utterly failed and the result was all that could be desired as free motion was secured: the ball was saved and the graft, shrunken to one fourth by three eighths inch, is only to be seen by lifting the upper lid no part now remaining on the cornea.

In case three the removal of so large a portion of conjunctiva as was necessitated by the operation did not allow of interposing flaps from this tissue to prevent anchylosis, and nothing but grafts of some kind would have secured the desired result.

Skin grafts are so easy to procure and so excellent in results as to leave nothing to be desired, unless mucous grafts would be less visible. The latter are much harder to obtain and place in position while the shrinking and disappearance of so much of the skin graft, after its function has been performed renders it inconspicuous and its presence would scarce attract attention.

AN APPARATUS DESIGNED TO DETERMINE CONVERGENCE AND ACCOMMODATION WITHOUT PRISMS.

By W. F. Southard, A. M., M. D.,
of San Francisco, Cal.

Demonstrated before the Medico-Chirurgical Society of San Francisco, August 4, 1895.

In testing the strength of convergence and accommodation, it has been the rule to use prisms and note the angle of displacement which the eyes are able to overcome. When prisms, bases out, are placed before the two eyes, in place of the single object before us, there will be seen two false images. The false image to the right is seen by the left eye, and the false image to the left is seen by the right eye. (Crossed diplopia, Fig. 2.) This is due, as we know, to the physical property of prisms, by which rays of light after passing through are bent toward the base. By following the lines of false projection outward from the retina, the images will be seen deflected toward the edge of the prisms, thus producing crossed images. In Fig. 2 the optic axes are still converging toward the distant point "O" that is, the eyes are parallel. The prisms have, however, bent the rays outward so that they do not touch the f, f', as before, but the points A, A′, to the outside of each fovea. To again see a single image in place of the two these bent rays must again touch the fovea; to accomplish this the eyes must rotate inward, so that the posterior poles of the eyes are carried outward sufficiently to bring the points f, f', to A, A′, when, instantly, the diplopia will be overcome and a single image seen in the

median line as at first. The desire to see a single image is usually strong enough to cause the eyes to overcome prisms of 20° for each eye, or a total of 40° in adduction. The fused image, though in the direction of the original object, is nearer to the observer.

Let us now in place of these two false images substitute

FIG. 1. FIG. 2.

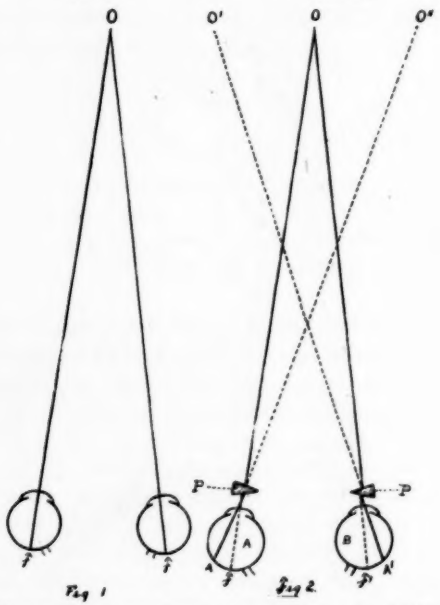


Fig. 1. The two eyes are parallel to receive rays of light from distant objects. The visual axes meet at O; result, binocular vision, a stereoscopic image being perceived by the visual center

Fig. 2. Eyes parallel as in Fig. 1. Prisms, P, P, bases out before each eye, displace the visual lines from f, f' to A, A', outside of forea. Result crossed diplopia. Right eye is conscious of O' and left of O". To find these images, the eyeballs must rotate inward untill f, f' are at position now occupied by A, A.'

two real images, as two candles, C, C', (Fig, 3,) placing them side by side, but at a distance from each other equal to the two false images of Fig. 2. It is obvious that when the two eyes are accommodated for the point O between these candles, the candles themselves are imaged on the outer portion of each retina, just as were the two false im-

ages, Fig. 2. The candle C′, on right side, will be seen by the outer portion of left eye; and candle C, to the left, by the outer portion of the right eye. If we can create an impulse strong enough to cause convergence of the two eyes, so that the fovea of each eye, f, f', will move to the positions a, a', then these two real images will approach each other and finally fuse. Since, however, consciousness accepts these two images as representations of two real objects situated in space instead of two false images of a single real object, it is evidently a very difficult matter to bring these images to a single point by ordinary attempts at convergence. If we can do so, it is also plain that we can measure the convergent and accommodative effort as well without as with prisms. To do this, however, we must have all the conditions present, such that consciousness will accept these images as it did the false images and create the desire to fuse as strong in one case as in the other. This can be accomplished by using the apparatus which I have devised for the purpose. As will be seen it is made of two parts, a screen and its stand. The screen, which is the working part of the instrument, is of oxidized sheet copper, 36 x 25 cm. in size. In the center of the screen is a vertical opening, V, 14 cm. long and 1 cm. wide. This opening can be closed by a movable shutter worked by a rack and pinion, R. In the shutter is a hole, H, ½ cm, in diameter, which can be used instead of the vertical opening. When this small hole is used the two lights must be on a level with each other, else both cannot be seen at the same moment. The screen is so made that it can be removed by unscrewing at A, and, replacing at right angles at A′, the opening now becomes horizontal. The rod holding the screen is inserted into a tube that the screen may be raised or lowered at convenience. The base is a heavy tripod of iron, thus giving steadiness to the whole affair. It can be easily taken apart, and will occupy but small space when packed,

To demonstrate this apparatus place two lighted candles a few inches a part at a distance of 10 or 20 feet from the observer. Place the screen 36 to 50 cm. from the eyes, it is now evident that the right eye cannot see the candle C′ neither can the left eye see the candle C. Now cover the

left eye, and by a slight movement of the head, the candle C (that is, the candle on left side) will come into view of right eye; uncover the left eye, and if the candle C′ (that is, candle to right side) is not seen by left eye, let this candle be moved by an assistant a few inches to and fro, or let the observer move his head back and forth, keeping one candle always in sight, in a moment the observer will see both candles. The conditions then present are as follows: The eyes have now been made to view these two candles just as they did when looking at the false crossed image due to the prisms, and they accommodate and converge for the crossed candles, Fig. 3, as for the crossed false image, Fig. 2.

In both examples the rays from the candles (before fusion) fall outside of the fovea of each eye, a, a′, Fig. 3; a, a′, Fig. 2. If, now, the two eyes are focussed upon the vertical slit the two candles will *appear* to approach each other and stand in the opening *together*, at the point of intersection of the visual axes. The eyes have converged and brought the rays of light upon the fovea (the rotation equalling in degree the rotation when fusing the false image produced by prisms, if the two lights are at a distance from each other, equal to the separation of the false images of the prisms, Fig, 2.) In fact, the two real images seen through the screen are interpreted by consciousness exactly as it did the two false images of the prisms, and the same desire to fuse will arise in both cases. By placing these lights at varying distances apart and moving the screen nearer to or farther from the eyes, we are able to demonstrate all degrees of convergence and accommodation possible equally as well as with prisms. Setting the lights near to each other the demonstration is so easy that almost any person may very readily observe the phenomenon of fusion. When the lights are set far enough apart to equal the displacement of a 40° prism, either have the shutter almost closed, or, what is better, close the shutter and use the round hole for the point of focus. If the room is quite dark and accommodation is made for the small hole, the images of the candles will approach each other more quickly than when using the vertical opening. A red glass placed before one eye gives a better effect to the experiment, as the

red and white light will appear together in the same opening.

Since fusion can be an accomplished fact only when the

FIG. 3.

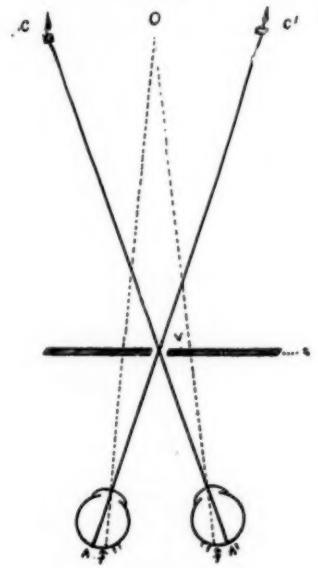


Fig. 3.

Two candles, c, c, in place of a single object. Screen, s, between eyes and candles. Position of observer such that candle, is seen by left eye at, c'and candle, c, by right eye at A V, the vertical slit through which the rays from candles come to the eye. Result, positions of candles are as the positions of the two false images of Fig. 2. To fuse or bring the two candles together, accommodate and converge upon V in screen. the eyes now rotate exactly as in Fig. 2. to fuse the two false images. The dotted lines are for the purpose of showing that the two eyes could not focus upon O at the same instant. Opening, V, is in the median line the right eye can only see objects to the left and the left eye only objects to the right.

visual axes are simultaneously direct to the object looked at (Fig. 1,) fusion of the two images seen throngh the screen must be at the intersection of the visual axes, viz., at the opening in the screen. When the hole is used the observer, before accommodation, sees nothing but two small round lights situated apparently on the dark screen just in front of him. Accommodation and convergence are now

considerably easier than when using prisms. My experiments seem to show that the small, round hole produces a stronger desire to unite the two images than when the slit is used, but it is more difficult to adjust the eyes to see the two candles. There does not seem to be the same sensation in consciousness that the lights are at a distance from the observer when the intervening space is cut out of view.

FIG. 4.

Position of eyes after fusion of candles, the visual axes are at f. f each eye. The image of the candles, c. c, are together at V.

Since it is impossible for the eyes here to have a binocular image of any object in the median line beyond the screen, these candles must appear to be in this opening.

The moment the observer sees the two candles through the opening he is told to pay no further attention to them, but look intently at the opening in the screen. He generally says, "I see two openings with a light in each." In a moment convergence and accommodation act and they generally come together. As a further test of the usefulness of a focussing point within 30 or 40 cm., I frequently

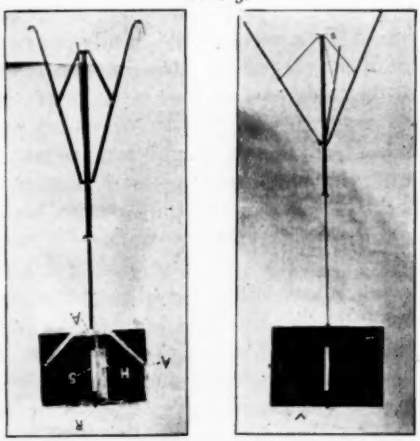
have my patients, when using prisms, hold a cardboard in front of them, so that the upper edge is on a level with the pupils of their eyes; the two false images now appear just above the edge and apparently nearer. Ask the patient to imagine that these images are just in front instead of at a distance, then tell him to look intently at a spot at the edge of the board; the eyes will quickly converge and the images fuse even after many attempts by the old method have failed. Removal of the screen will frequently cause diplopia to recur, showing that the focus was caused by having a converging point to accommodate upon. In this way I have over and over again found that patients at the first sitting can be made to over come much stronger prisms than can usually be done when no converging point is used. In using prisms for a test I have been in the habit of first holding an object close to the eyes at a point where a single image could be seen, then gradually removing it from the eyes in the direction of the light one or two feet, when by a wave of the hand toward the candle the eyes remain converged and the images fuse. Taking advantage of this idea of a need for a convergent point when testing with prisms, the screen on my apparatus is made to remove from the stand and replace with the opening horizontal, so that prisms may be employed in the usual manner. If you now place the screen about 30 cm. distant from the eyes, put the prisms on your patient then adjust the height of the screen so that he will see the two false images just above the lower edge of the opening, tell him to look at this edge intently, and he will (if it be possible for him to fuse the image at all) do so much more quickly and easily than without the screen. When fusion is complete test him further by removing the screen from before his eyes; fusion will generally remain after once being induced, although the screen is removed, as the desire to see single is very strong in the visual centers.

It has been the usual custom to measure the convergent and accommodative power by stating the sum of the strength of the two prisms which the patient is able to overcome. On our first trial I think that we more frequently *undervalue* this power than the opposite, for repeated tests have shown that even after a patient says, "I cannot force the images

together, they move back and forth and will not unite," by having a convergent point to accommodate upon in a line with the images, so that the eyes can keep the images in view at the same time they are accommodating to a near point, fusion will usually follow very quickly. By either method when fusion has been consummated it will remain as long as the eyes remain accommodated to the near point; when, however, there is a lack of muscular balance, the moment the near point is removed diplopia will be liable to return.

This apparatus has the merit of simplicity combined with effectiveness. It is strong, light, and remains steady when set up. A few minutes only is needed to become familiar with its use, and a moment's trial will serve to show whether a patient has a loss of innervation for convergence and accommodation. It is not intended to become a sub-

FIG. 5.



S. Shutter. R. Rack and pinion. H. Hole in shutter. V. Vertical opening in screen. A. Containing thread to unscrew screen and replace at A, when V will be horizontal.

stitute for prisms, especially in orthopedic exercises. It will be found, I think, a useful method for demonstration in the class-room or physiologic laboratory. The general physician may find it useful at times, for it can quickly be adjusted and any anomaly of the ocular muscles is quickly discovered.

It is very interesting to note that this method for testing convergence brings out very clearly the fact that it is a most difficult matter to determine whether images are or are not crossed. In the case of most observers who look at the candles through the screen they feel sure that the candle to the right is seen by the right eye, and that the left with the left eye. It is only by alternately covering the eyes that they become convinced that they really see them crossed; even then it seems to puzzle them.*

In conclusion I would have the reader note the fact that convergence and accommodation, can be accomplished without prisms on this apparatus.

Place the two candles 20 centimeters apart/ 20 feet from the observer, then if he has sufficient control over his convergence and accommodation he can, by concentration of his mind upon some imaginary point in space, cause the two lighted candles to apparently move toward each other and finally fuse. There will then be seen three lights instead of the two candles, the central one being the fused image; the two outer ones are the original candles; but seen by each eye on the same side as is the candle. Consequently the conditions present are not the same as when diplopia is produced by prisms or the use of my apparatus. By these last methods the images are *crossed* and the fusion is brought about by a stimulus in the visual center which seeks for a single or stereoscopic image, instead of two. When, therefore, we produce fusion of two candles by looking at an imaginary point in space, this is done solely by voluntary exertion of our power of concentration, because the brain is conscious that there are in reality two candles instead of two false images. It is interesting to note the power which certain individuals possess of voluntarily forcing their convergence and accommodation, or even convergence. This is capable of increase by practice. Since this paper was written my friend, Prof. Joseph Le Conte, of the university of California, called upon me, and he demonstrated to me his own remarkable power of voluntary control over his adducting muscles. When the two can-

*This instrument was made from my design by H. Kahn & Co., San Francisco. The photograph of the apparatus and diagrams was also made by them.

dles were at least four feet apart he almost instantly brought about fusion; at the same time he advanced toward the candle until the two *outer* images disappeared, leaving only the central single fused image, the two outer images disappearing when the optic disks received the rays from these two candles, the macula only perceiving the fused and single images.

603 Sutter St.

A CASE OF ACQUIRED REGULAR CORNEAL ASTIGMATISM.

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We are taught that regular corneal astigmatism is:

1. Nearly always congenital.

2. Congenital regular corneal astigmatism is nearly always unchangeable.

3. If acquired or changed, it is due to operations, wounds, traction or pressure or disease of the membrane, tending to conical cornea.

A case contradicting these established principles will be of interest.

A number of cases of *increase* in corneal astigmatism have been reported, but few of those I have read are entirely free from suspicion of inaccuracy.

Hobby, of Iowa, says, "It has been the general impression that astigmatism was usually congenital but if we search for data upon which this opinion is founded the little that rewards the effort is very unsatisfactory" from which quotation I assume that he does not believe astigmatism is necessarily congenital or unchangeable.

Bull, of Paris, reports a case of a child examined in January, 1887, by Javal and himself, in which the ophthalmometer showed astigmatism of .75 D. in each eye. In July, 1889 Dr. Bull examined the child again and found

2.75 D. of astigmatism in the right and 1.25 D. in the left. There is no reason to doubt the measurements of this case, but Roosa explains it and other similar ones on the ground that they are cases partaking of the features and approximating toward conical cornea.

Mr. C. C., age 29, now an ensign in the United States Navy, took his first physical examination at Annapolis in September, 1883, at which time vision was, O. D., 25-20, O. S., 25-20. He was subsequently examined with the following results: April 1884, O. D. 25-20, O. S. 20-20. April 1885, O. D. 20-20, O. S. 20-20. April 1886, O. D. 20-20, O. S. 20-20. April 1887, O. D. 30-20, O. S. 30-20. May 1889, O. D. 30-20, O. S. 30-20.

He enjoyed the good health incident to his profession and considered his sight perfect. One night at the theater in the year of 1895, he discovered by inadvertently closing the right that vision of the left eye was bad. He reported his condition to his commanding surgeon at once, and the result was a medical survey which reported, Dec. 28th, 1895, as follows:

"Unfit for duty, disease, weak eyes. Right eye slightly myopic and astigmatic. Left eye vision 8-20 and not corrected by lenses. There is esophoria of left."

February 6th, 1896, I examined his eyes with following results:

O. D. V. 15-20, with—50 D. S. V.=15-12. (—25 D. Cyl. ax 15° added improves a trifle.)

O. S. V. 15-100 with—1.75 D. Cyl. ax 15° V.=15-15

No esophoria by Maddox test. Javal opthalmometer shows astigmatism to be corneal and about 2. D. Eyes normal in appearance. Corneas perfectly clear. No conjunctival hyperaemia.

February 7th, examination was repeated under homatropine with practically the same result as on 6th. Numerous subsequent examinations show no change. Patient experiences no trouble from eyes and wears following glasses with perfect comfort. O. D.—.50 D. S. O. S.—1.75 D. Cyl. ax 15°.

In May 1896 patient was called before a Retiring Board and permanently relieved from active duty on account of the condition of his eyes.

The proof that this astigmatism is not only not congenital but that it did not exist in May, 1889, is conclusive to any one familiar with the visual examination conducted at the United States Naval Academy. Patient being a man of quick perception and in a pursuit demanding good

vision, very likely discovered his defect soon after its inception. Had he not come to me with the record of six examinations back of him, I would undoubtedly have believed and insisted that his pronounced astigmatism of the left eye was congenital and would have given him the usual time worn explanation for his not having discovered it sooner.

It is rational to presume that the development of this condition was a gradual process, though perhaps covering a short period of time. If I had examined the case during the process of development, and, let us say, when the astigmatism was only half as great as at present, I should (under the influence of established teaching) have assured the patient of its unchangeableness.

Had another refractionist fitted a glass to the left eye when its astigmatism amounted to 1. D. and later I had found the present condition of 1.75 D. I would have been justified by the prevailing idea if I had felt astonishment at the inaccuracy displayed by the previous examiner.

Dr. Roosa would explain this case as one tending to conical cornea but he says "Conical Cornea occurs only in persons of delicate constitution"; whereas the subject of this article is a bronzed seaman. We are also told that conical cornea is nearly always a juvenile affection and that it is attended by marked asthenopic symptoms. Mr. C. has no asthenopic symptoms and discovered his condition accidentally.

In the absence of all traumatic interference, demonstrable pressure, traction or visible pathological condition, I am forced to believe that there was a weakening or thinning of the cornea similar or perhaps identical to that which occurs in conical cornea, but the greatest stretch of the imagination can hardly identify this case with the picture of conical cornea as it is presented in our text books. I think the condition should be known by a more definite term than a tendency toward something which it is not, and most likely never will be, and if we should accept this as a case of "tendency toward conical cornea," how are we to separate such cases from congenital astigmatism? The only explanation of the present case that I can offer is that patient was employed for about six months of summer

of 1895 on "Coast survey field work" and used a sextant for hours every day. While looking with the right eye he was in the habit of firmly contracting the orbicularis of the left, as the light on the water was too blinding to have it open or even partially relaxed, and it may be that the increased curvature of the cornea at meridian 105° causing an astigmatism of 1.75 D. was caused by this continued pressure of the orbicularis combined with a slight absence of corneal resistance, which is presumed from the development of .50 D. of myopia in the right. That this astigmatism was probably produced by the action of the orbicularis, is borne out by the fact that the meridian of greatest curvature (105°) is, I think, in line with the greatest force effected by the orbicularis when in a state of contraction.

This case tends to confirm a suspicion I have long entertained, that regular corneal astigmatism is not necessarily congenital and is not unchangeable.

AN EYE SPECULUM, WITH FIXATION-FORCEPS ATTACHMENT.

By Russell Murdoch, M. D.,
of Baltimore, Md.

In 1874 I showed at the annual meeting of the American Ophthalmological Society, a new speculum and attachable forceps for automatic fixation, and in 1883 I showed them again with modifications.

The present form, (see drawings,) is the same as the second except that it is improved by a simple forceps attachment.

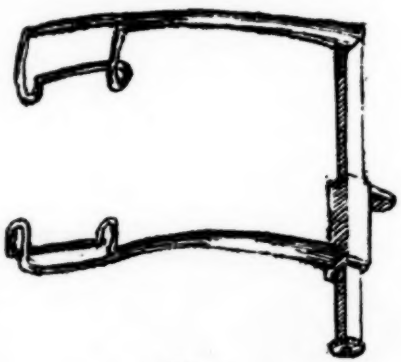
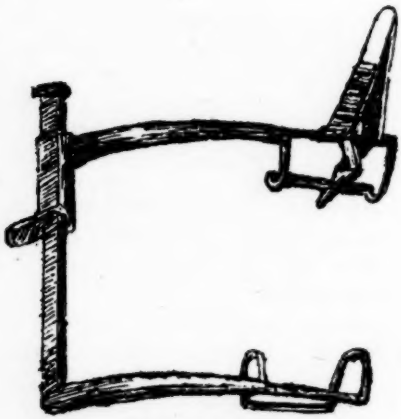


Fig. 1.

The speculum (Fig. 1) consists of a bar, a collar and two blades. The particular advantage claimed is that there is no setscrew and no spring. The lids press the lever-like blades, tilt the collar and lock it on the bar after the instrument is opened to the desired extent. fig 2

The little forceps, (Fig. 2) have minute shoulders on their under surface with which new and simple device I attac

them to the parallel wires of the speculum.



FIGS. 2 AND 3.

With the forceps I seize the conjunctiva and depress the ball to the desired extent. I then hook the lower shoulder

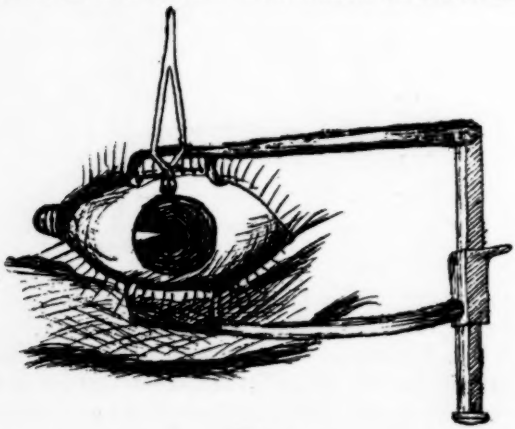


FIG. 4.

over the lower wire, hold it there and press the upper home

on the upper wire. This locks them over the two wires so that they resist all movements of the eye from below, but offer no resistance to the operator from above. The simplicity, efficiency and quickness of both attachment and detachment leave nothing to be desired.

When I first used this automatic fixation, I depended solely upon it, even while cutting the cornea. I now use it only when cutting the iris. During the section of the cornea, I steady the ball with the long fixation forceps, then lay them aside and take up the iris forceps. The ball has been steadily held from the beginning, and now, when the assistant is needed for the first time, the little forceps take his place and without his help the iridectomy is performed.

A long experience has satisfied me that the scheme is simple and safe, that the eye is even steadier than when held by the best assistant and that the time consumed between the stages is much shortened. An incidental advantage over fixation by an assistant is that during an operation before a class an unobstructed view is obtained throughout. Operators away from medical centers, have, I am told, long felt the need of fixation when the stage for cutting the iris is reached.

The instrument is made by Chas. Neuhaus, 510 Eutaw Street, Baltimore, Md.

REMOVAL OF A SPLINTER OF STEEL FROM THE VITREOUS CHAMBER WITH AN IMPROVISED MAGNET.—Illustrated.

By L. M. Willard, M. D.,
of Wausau, Wis.

J. V. H., age. twenty-two, called on me Oct., 24th., 1893, complaining of having been, the day before, struck in the left eye by a piece of steel, which caused immediate blindness.

Examination revealed a small wound, about two millimeters long, in the limbus at the nasal side of the cornea and on a level with the pupil. There was also a remnant of a blood clot in the bottom of the anterior chamber. The hemorrhage was most likely the cause of the sudden blindness, and the subsequent absorption left the pupil clear. There was no pain, tenderness or congestion of the eye and the vision was $\frac{20}{20}$.

With the ophthalmoscope a long, bright, crooked splinter of steel could be seen lying against the retina just below and internal to the papilla; there was a small area of congestion of the retina about the foreign body. (See fig. 1.)

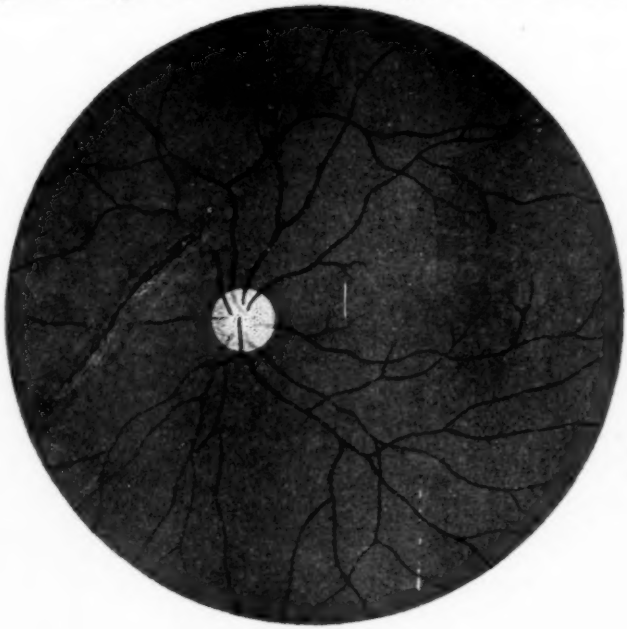
I informed my patient of what I had found, and advised the immediate removal of the steel. After some explanations as to the probable results and the liabilities of the case, I gained consent to operate.

Atropia was instilled and an hour appointed that afternoon for the operation. Not having a magnet I proceeded to make one. A three cornered file about five inches long was procured and the point ground and polished to a flat rounded end; the file was then charged from an electric railway dynamo and to my surprise would suspend a piece of steel weighing 490 grains.

All aseptic precautions were observed, instruments and solutions sterilized, and the magnet boiled for an hour.

The operation was conducted as follows: The conjunctival sac and the lids were irrigated with a warm saturated solution of boracic acid, and several drops of a 4 per cent. solution of cocain instilled. An incision with the scissors was made through the conjunctiva and Tenon's capsule at the upper border of the external rectus muscle; with a Graefe knife I began an incision through the sclera at the upper border of the external rectus and about twelve milli-meters back of the sclero-corneal junction and carried my incision backward about five milli-meters. With my head mirror the retina and foreign body could be plainly seen through the pupil; I therefore used it as a guide in manipulating the magnet within the vitreous chamber.

Directing the patient to gaze in the proper direction I passed the point of the magnet through the incision in the



Left Eye. J. V. H.

sclera in a direct line downward to the nearer end of the foreign body; when the point was within what appeared to be two mm. of the foreign body, the latter jumped to the magnet which was then rotated about 90° and withdrawn with the steel attached to the point. There was no pain attending the operation.

The eye was then irrigated with boracic acid solution, a few drops of atropia instilled and a light compress bandage applied. The splinter of steel was crooked, with ragged edges, and measured seven mm. in length and about one in thickness.

A few hours after the operation the patient had a severe attack of vomiting which was checked by three grains of oxalate of cerium.

About thirty-six hours later the eye was injected; there had been no pain and there was no sign of inflammation except a slight congestion at the wound in the conjunctiva. Atropia was again used and the bandage applied. Light diet and rest in bed ordered.

The eye was carefully watched and atropia used every day. Patient felt well and had no pain and there was no congestion about the eye; appetite good, bowels kept freely open with magnesiae sulphas.

November 6th, called in the morning; found patient up, feeling well and enjoying a shave. The vision was about $\frac{20}{30}$. Pupil dilated with atropia. The same day at 4 o'clock p. m. was called to the house, found the eye extremely congested and patient suffering intense pain. Several drops of atropia and cocain solution were instilled and hot fomentations applied for an hour, when pain subsided.

Patient slept well all night, the eye was but slightly congested the next morning; at two o'clock p. m. same day a sharp excruciating pain began in the eye and continued for several hours in spite of treatment; the right eye became very sensitive to light and touch. At nine o'clock that night the eye was enucleated.

I at first thought that the piece of steel had passed through the zonula of zinn without wounding the ciliary body or lens, but I am now certain that the ciliary body had been perforated or lacerated and that this was the cause of the severe irido-cyclitis that followed, and had the eye not been enucleated both would have been destroyed.

COLOBOMA OF THE OPTIC NERVE AND RETINA WITH PERSISTENT OPAQUE NERVE FIBERS.

(With colored plate and an illustration in the text.)

By H. V. Würdemann, M. D.,
OF MILWAUKEE, WIS.

DIRECTOR WISCONSIN GENERAL HOSPITAL AND SECRETARY OF THE ASSOCIATION; OCULIST AND AURIST TO THE MILWAUKEE CHILDRENS' HOSPITAL AND TO THE MILWAUKEE COUNTY HOSPITAL FOR THE CHRONIC INSANE.

This peculiar congenital anomaly of the optic nerve and retina has been under my observation for ten years.

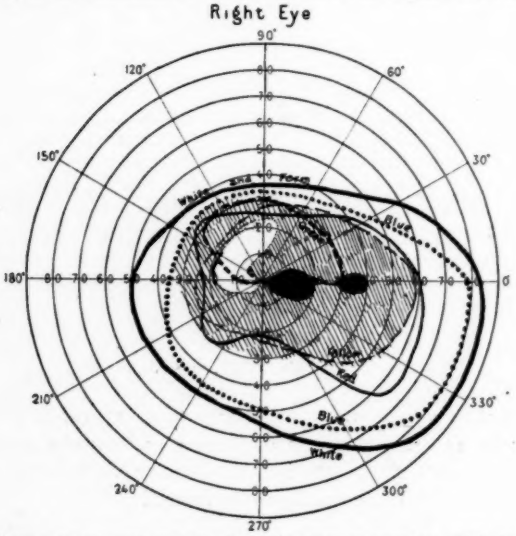
Status Praesens. American female, age 28, always in good health; mother of two healthy children; no consanguinity of parents; ancestry American for four or five generations; no apparent external defect; eyes normal externally. Vision: R. Sees hand but counts fingers at one meter with—15.⊃—4. 180°; L. sees 6/XXIV with —50.⊃—.87, 180°, sees 6/V/.

The visual field of the right eye is fairly large, showing however, decided enlargement of the blind spot with another small scotoma towards the temporal side. Over the whole of the central area there is a relative scotoma or blurring for white and colors with the exception of a spot in the superior nasal quadrant where colors are distinctly recognized. The subject is most intelligent and the visual field is the result of careful and repeated examinations. (see Fig. 1.)

The visual field of the left eye is exceptionally large, extending beyond 90 degrees on temporal side, and color vision is everywhere perfect.

After suitable correction of the refractive error and dila-

tation of the pupil a most unusual ophthalmoscopic picture is presented to view, Our attention is immediately drawn to a large whitish plaque of opaque nerve fibers extending from the disk in the position of the optic nerve and to



Showing central and paracentral absolute scotomata with large relative central scotom and preservation of small sector of superior nasal quadrant of the visual field.

the striated appearance of the retina. These fibers cover a space quadruple the diameter of the disk, the striae following the direction of the larger blood vessels. The optic nerve is cupped, 6 to 7 D. in deepest part. The choroidal and scleral rings are not apparent at the temporal edge of the nerve as the coloboma extends through this in a deep groove continuing in a trowel-shaped area to the space occupied by the macula lutea, merging rather abruptly on the sides into the retina. The depression at the choroidal ring is 2 D., greater than that of the nerve rim. The retina appears to stop entirely at the edge of this depression there being two small twigs of vessels from the disk running along its superior and inferior edge, but not dipping into the depressed area. In the retinal coloboma the choroidal vessels show indistinctly. (See colored frontis-piece,) In other respects the eye is normal and has never shown evidence of disease. The left eye is likewise normal with the exception of the compound myopic astigmatism.

805 Grand Ave.

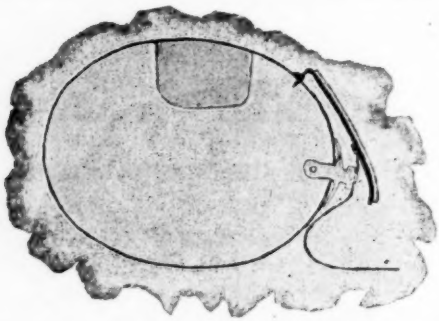
AN IMPROVED BIFOCAL LENS.

By W. F. Southard, M. D.,
SAN FRANCISCO CAL.,

Having prescribed, as well as having worn bifocals for several years I find that they fail to give that general satisfaction which they deserve. A very considerable number of persons, noticeably advanced presbyopes, soon discard them on account of the dizziness and sense of uncertainty which is experienced by them when walking on the street. I have been informed by several patients, who have tried bifocals that when crossing a crowded street they feel timid fearing injury from passing vehicles. I find that this disturbance is occasioned by the necessity for looking down to see that their footing is secure. As the visual axes pass from the clear upper fields to the lower "segments" the sudden blurring of objects in front of the eyes causes unpleasant mental sensations which many patients can never overcome.

As presbyopia increases, indistinctness of the lower portion of the field must become greater; and a certain amount of apparent displacement of objects also takes place since the visual axes do not pass through the centres of these thick segments. Another source of discomfort is occasioned by the upper edge of the segment which falls just below the pupil; when one is walking and the eyes look at the ground anywhere within a distance of 20 feet, this edge crosses the pupillary space. As about one-third of the area of the lens is covered by the segment the wearer is obliged to look over or under them to see the

foreground distinctly. To overcome these serious objections I have designed the following form of lens which Henry Kahn & Co', of San Francisco have kindly made



for me. The lenses are the exact size of the accompanying cut. 33 x 41 mm. technically known as the ooo eye size. Fig 1. They are bifocals of the cement variety, and the segments are almost square, measuring 10x12 mm. they are decentered inward, for reading approximately 3 mm. in each eye, figuring for convergence at a near point of 12 inches. The result is that we have a bifocal which gives a greatly enlarged field above and at the sides. Walking on the street is unattended with the slightest discomfort. The greatest care must be taken in centering these segments otherwise there will be some disturbance when reading. Although bifocals are not designed for prolonged use at the reading point, nevertheless I have found them so comfortable that I frequently forget to remove them for my working glasses when I sit down to my evening work.

The general appearance of this form of bifocal is greatly in its favor, these little segments at times being, scarcely noticeable until one approaches close to the wearer.

603 Sutter St.

[Dr. Southard does not, of course, claim priority in publication of the foregoing description; his short article is inserted here for the purpose of calling attention to the advantages of the size and shape of the reading lens. C. A. W.]

AN INSTRUMENT TO FACILITATE THE RETINOSCOPIC DETERMINATION OF AMETROPIA.

—DEVISED BY—

FRANCIS M. PERKINS, M. D.,

FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA; ONE OF THE OPHTHALMIC SURGEONS TO ST. AGNES HOSPITAL, AND TO THE PRESBYTERIAN HOSPITAL IN PHILADELPHIA,

—AND—

THOMAS W. TAIT, M. D.,

CHIEF OF THE OPHTHALMIC CLINIC AT ST. AGNES HOSPITAL, VISITING SURGEON TO THE SOUTHERN DISPENSARY OF PHILADELPHIA.

EXHIBITED AT THE MEETING OF APRIL 21ST, 1896, OF THE SECTION IN OPHTHALMOLOGY, OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—Illustrated.

THE time consumed in the careful correction of Ametropia by trial lenses, as well as the difficulties which are inherent in this subjective method, have caused Ophthalmologists to employ objective methods of examination whenever possible.

The objective test most generally employed, viz: The Retinoscope, presents mechanical difficulties well known to those who use the shadow test; the chief of them being frequent changes of lenses in the trial-sight frames, and another not inconsiderable one being maintenance of the desired constant distance between patient and observer.

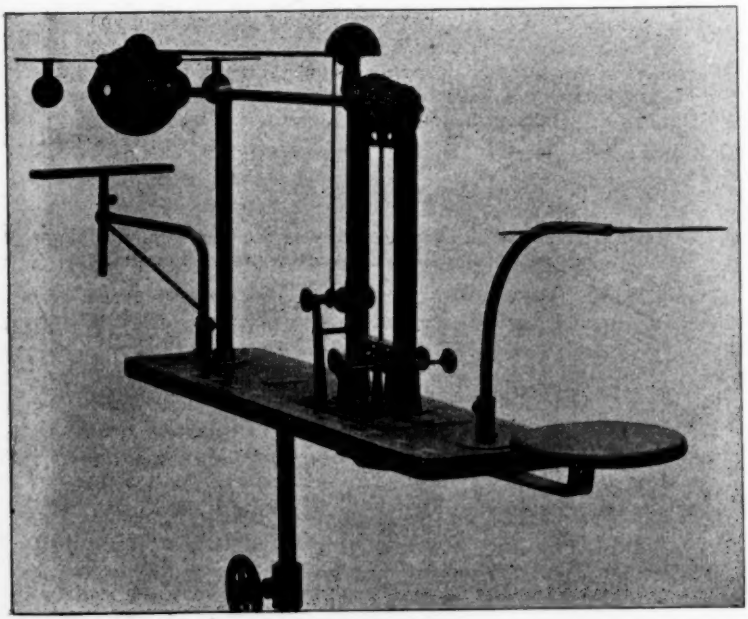
The instrument here presented is designed to overcome these two difficulties. While intended for this purpose by the designers, it is capable of being also employed in subjective examination with lenses; the mechanism of its re-

volving discs and cells, being susceptible of use, precisely as are the lenses of the trial-sight box, by revolution of lenses before the patient's eye as he looks through them at letters across the room.

The instrument this evening presented to the Section ENABLES THE OPERATOR TO:

1. Revolve before patient's eye convex and concave spherical lenses from 0.12 to 9.75 dioptries; an interval of 0.12 dioptries being obtainable throughout the entire series.

2. Maintain at all times the exact distance of one metre from patient's eye, without possibility of varying to the extent of a centimetre.



Perkins-Tait Retinoscope.

3. Ascertain easily exact distance from patient's eye, for all points inside of metre distance, without aid of assistant to measure it.

4. Revolve before patient's eye any desired cylinder from Nachet case; after finding meridian of greatest or

least Ametropia by the axis-finder which forms part of the rotating cell.

5. Read off the exact spherical lens at any time before patient's eye, or exact position of axis of rotating cylinder, or read them both at the same time, without change in position of source of light, by means of the reflection from the Retinoscopic Mirror.

6. Revolve cylinder before either eye, with or without using the spherical lenses of the instrument, and use spherical lenses independently of cylinders.

7. Use diaphragms of any size, mounted in Nachet cells, so as to diminish the peripheral corneal area to any desired extent.

8. Conveniently make notes of the Retinoscopic findings, and make all changes in lenses, without leaving his seat.

THE MECHANISM BY WHICH THESE RESULTS ARE OBTAINED IS:

1. A series of revolving lens-bearing discs (actuated by a series of revolving shafts) moved by a wheel on the table within easy reach of operator's hand while his other hand manipulates the mirror; the combined mechanism dropping lenses from 0.12 to 9.75 in front of patient's eye, and keeping them perfectly centred.

2. A pair of revolving cells to hold Nachet cylinders, or axis-finders, and capable of revolution through 180 degrees of arc by a mechanism similar to that which revolves the lens-bearing discs.

3. A series of numbers, on revolving wheels, corresponding to the lens before the patient's eye at any given time.

4. A protractor of 180 degrees of arc, with index moving in front of it; showing exact position of rotating cylinder in respect to the eye under examination.

5. Clips to hold extra lenses from Nachet case, should the lenses in the revolving discs not be of sufficient focal strength to measure the existing Ametropia; or to hold diaphragming discs to decrease peripheral corneal area.

6. A chin-rest for patient, to secure fixation at a definite position behind lenses of the discs, and movable blinders for the eye not under observation.

7. An operator's hand-stop, to insure constant maintenance of one metre's distance between his eye and that of the patient.

8. A graduated scale, laid off on the table, enabling operator to know his exact distance from the patient for points inside of the metre distance.

9. A swinging arm rest for operator, to prevent fatigue while manipulating the wheels of the instrument, and useful as a table for making notes of Retinoscopic findings.

DESCRIPTION OF THE INSTRUMENT.

The instrument, made of blackened brass, is mounted on a portable table capable of universal adjustment.

Two standards give support and rigidity to four concentric tubes above the table. The outer tube is immovable and is for support only. The inner tubes revolving within one another are fastened to three revolving discs whose planes are parallel with each other and at right angles to the long axes of the tubes. The discs contain spherical lenses, and are enclosed in a box having two openings. Behind one of these openings the patient's eye is placed, the chin supported on an adjustable rest. Between the openings the lenses pass by intervals from 1 to 0.12 dioptries being centred by stops like those employed in the Ophthalmoscope. The tubes are revolved by wheels placed at the end of the table nearest to the operator, the motion being transmitted upward to the tubes by gearing. The disc nearest to the patient contains 9 convex lenses (1 to 9 dioptries;) the second disc 9 concave lenses (1 to 9 dioptries;) and the disc nearest to the operator contains convex lenses 0.12, 0.25, 0.50, 0.75; and concave lenses of the same foci. One blank is left in each disc. To the ends of the concentric tubes which are nearest to the operator are fastened small discs of varying widths, the widest one being furthest from him. These small discs bear metallic tickets which are pivoted very loosely, and on these tickets are engraved the focal distances of the lenses in each of the lens-bearing discs. The loose pivoting of the tickets makes the numbers upon them always upright.

Parallel with and above the disc-revolving tubes is a shaft, which, by gearing, revolves a cell taking any cylinder in Nachet Case; and having transverse markings

after the axonometer of Dr. J. Thorington of Philadelphia. The shaft is revolved from a wheel on the table (by gearing like that of telescopic tubes,) and carries, at extremity nearest observer, a pointer; which moves in front of a protractor 180 degrees of Arc graduated to 5 degree intervals; the position of pointer relative to protractor indicating position of markings on axonometer, and position of any cylinder axis co-inciding with them.

Figures on tickets and degrees on protractor can be read by operator by light reflected from mirror, without leaving seat or changing position of light.

From end of table nearest operator springs a bar, through which passes (at right angles to long axis of table) a rod capable of being pushed to either side thereof. When the mirror-holding hand is in contact with rod the mirror is one metre from patient's eye behind lens box.

A swinging arm-rest makes manipulation of wheels on table easy, and serves as convenient table for note taking. On table a centimetre is laid off, on which distance from patient can be read when working inside the metre.

Behind disc-bearing box are clips to hold lenses from Nachet Case (if any in excess of 9.75 dioptries are needed,) or diaphragms to decrease peripheral corneal area.

There are blinders for eye not under examination, which, with chin-rest and hand-stop bars, fold over table when not in use.

The apparatus was made for designers by S. Murset & Son, 830 Race St., Philadelphia, who can duplicate it.

A NUMBER OF LENS CASES ILLUSTRATING HEREDITY.

By H. S. Miles, M. D.,

OF BRIDGEPORT, CONN.

ASSISTANT SURGEON MANHATTAN EYE AND EAR HOSPITAL, NEW YORK; DISPENSARY SURGEON TO BRIDGEPORT HOSPITAL.

There having recently come to our notice a family of ten, in seven of whom congenitally misplaced lenses occurred, we were led to look up the subject and find that, although this is not a rare malformation it is not met with very frequently. In 1881 Dr. F. E. D'Oench reported a case in the *Archives of Ophthalmology* and went carefully into those previously reported. He had found fifty-two up to that time, and stated that only ten occurred in 50,000 patients of Dr. Knapp. In looking through considerable literature we find thirty-nine cases since then, 10,000 of our histories in Bridgeport containing but one case to add to the family referred to, and on reviewing the records of our clinic at Manhattan we see no mention of this condition in the last 10,000 diagnoses.

On February 6th, 1888, Mrs. L. came to my associate, Dr. F. M. Wilson, with pain in her left eye; an examination showed the lens dislocated forward, the edge lying on the iris and projecting a little into the anterior chamber; the right lens was dislocated into vitreous, attached below, freely movable and coming into place when she bent her head forward. Removal of left lens was advised, which was done at the Bridgeport Hospital seven days later; the

recovery was good, glasses prescribed and useful vision obtained. The following December she returned with the right lens in the anterior chamber; it was extracted by Dr. Wilson on the same day; very little reaction followed, her eyes have been quiet since, and she retains good vision.

In her history she states that she has had poor sight since her earliest childhood. She has five children living who are "very nearsighted"; a son died last summer, age twenty-four, whose sight had always been bad; she has two children that "see all right." We have prepared a family tree that shows this diagramatically, males being designated by "M," females by "F," and as a further mark of distinction Ms are surrounded by circles and the Fs by squares; individuals with eyes affected have been shaded.

Mrs. L. says that none of her husband's or her own ancestors, so far as she knows, had trouble with their eyes, and she distinctly remembers that her mother and grandmother had good sight; she was in no way related to her husband before marriage, nor have there been any intermarriages in the family. None of the children have been married; none of them had convulsions in infancy. She was delivered of the first six without instruments but forceps were used for the youngest two.

The father has normal eyes and normal vision.

The eldest child, Mary, is twenty-seven; her general health is good; she has always had bad sight; both her lenses are misplaced down and out, her left slightly farther from the centre; they are freely movable but attached at outer side. They are one-fourth smaller than normal but still clear. She is highly hyperopic, with some astigmatism; she was given correcting glasses.

Thomas, who died, had, without doubt, misplaced lenses, for the mother, who had become a good observer on this point, says his eyes were very bad.

William is a strong man of twenty-three. Ever since he can remember his sight has been poor; at present his lenses are totally dislocated into the vitreous, the righr directly downward, the left a little to outer side; they are movable, quite clear and nearly as large as usual; he has a slight divergent strabismus. He does his work without glasses and only wished a pair to read with.

John, age twenty, was away from home and could not be examined but his mother is sure that his eyes are all right, so we have given him a clear circle.

Edward, age seventeen, is a well built fellow with excellent health but is "near sighted"; his lenses are very slightly out of place, both to temporal side; his eyes are normal in

FIG. 1.

Position of Lenses.

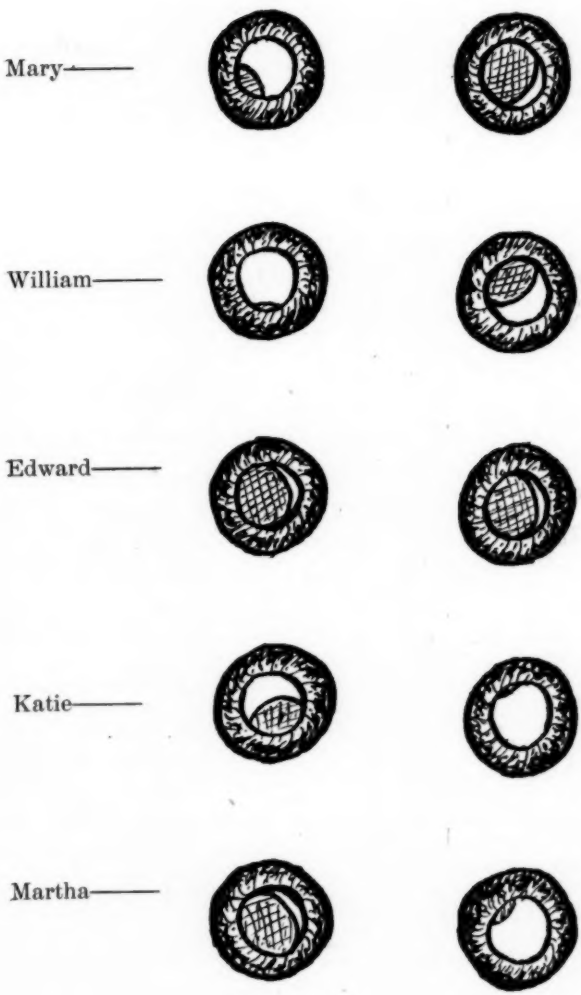


FIG. 2.

every other respect; a strong concave glass improved his vision.

Annie, age fifteen, has always been healthy and her eyes are normal in every way; sight twenty twentieths.

Katie, ten years of age, has lenses misplaced downward and to the left, her right being an exception to the others in that the direction is toward the nose; her lenses are clear, vision poor, helped with minus glasses; she has a divergent squint; her health is not very good. About a year ago she had swollen glands in her neck which formed abscesses.

The youngest child, a girl of three years, has lenses misplaced down and out, with poor vision. She also has swollen glands which have broken down.

The irides were very tremulous except in the youngest two; in these they were somewhat steady where supported by the lens. Their color was blue, except the left of the oldest which is a yellowish grey; in the eldest three they seem atrophied and inactive, scarcely dilating with cocaine and slowly with atropine. The suspensory ligament was not seen in any case: none of them has had double vision; none of them has nystagmus; none, save the mother, has been troubled except with poor sight; no pain or sign of irritation. There is total dislocation in the older members, mother and William, nearly so in Mary's case.

In none of the family were the lenses misplaced upward differing from the interesting series lately reported by Dr. F. B. Tiffany to the American Medical Association; six of his seven cases were in that direction. We have, however, among our histories an isolated case of a Swedish girl, twenty-two years of age, whose lenses are misplaced upward and slightly in, none of her relatives, so far as she knows, has bad eyes; but in most all cases reported heredity has been demonstrated. Among the most striking instances of this is Mr. Morton's family, recorded in Moorfield's Reports Vol. IX, where it was traced through five generations; there were eight males and two females. In our family there are four females to three males and it is still a question whether males or females are the more liable to these disorders. As bearing on this point we will mention a family among our congenital cataracts in which the mother and four of her six children were affected, one male and four females.

ABSTRACTS FROM RECENT GERMAN OPHTHALMIC LITERATURE.

Quarter Ending July 1, 1896.

BY H. V. WÜRDEMANN, M. D.,

OF MILWAUKEE, WIS.

Pneumococcus in Ocular Pathology—Chancre of Eyelid—Scotomata in Glaucoma—Cryptoglioma Retinae—Traumatic Disease of Macula—Amyloid Degeneration of Conjunctiva—Inflammation of Cornea—Tuberculosis of Eye and Brain—Interstitial Keratitis and Joint Affections—Blepharoplasty—Retraction of Orbital Fascia—Ichthyosis and Eye Disease—Extraction of Iron From Retina—Hydrops of Lachrymal Sac Traumatic Exophthalmus—Deafness and Blue Eyes—Pathology of Glioma—Thiersch Grafts—Toxemia of Exophthalmic Goiter—Value of Eucain—Eucain as a Local Anesthetic—Electrical Treatment of Ocular Inflammation—Nature of Exophthalmic Goiter—Structure of the Retina—Enucleation and Evisceration—Nature of Exophthalmic Goiter—Structure of the Retina—Enucleation and Evisceration—Enucleation in Panophthalmitis—Enucleation and Evisceration—Trachoma in the Rhine Provinces.

Experimental Study Upon the Relations of the Pneumococcus in Ocular Pathology.

BACH, D., (*Archiv. f. Augenheilk., Bd. XXI.*), does not find that the Fraenkel-Weichselbaum diplococcus is as common on the conjunctiva as had been shown by Casparani and Basso. He occasionally found it in his examinations, but never as a clear culture. He reasons that the incubating properties of the conjunctival cul-de-sac are of different nature according to time and place. A mild form of conjunctivitis can be produced by this micro-organism. He had experimented upon the etiologic relation of this diplo-coccus to ulcer of the cornea, inoculatin

the true corneal tissue with clear cultures. In six cases there was slight reaction. In eight the tissue became infiltrated; and in five hypopion followed. In eight to fourteen days grayish infiltration occurred without destruction of tissue. He concludes that pneumococcus has an etiologic relation to many forms of corneal infiltration and perhaps to ulcerative processes which are accompanied by infiltration, but does not seem to have much to do with progressive corneal ulceration. The pneumococcus bears no relation to the production of sympathetic ophthalmia.

Chancre of Upper Eyelid.

VELHAGEN (*Klin. Mon, f. Augenheilk, XXXIV.*, February, 1896,) reports a case of primary lesion on the upper eyelid of a man who had been previously healthy but who had lived four years with his wife who had formerly been a prostitute and who had been four years before marriage in the state hospital with ulcers in the urethra, broad condylomata and fluor albus. She had previously two children, one of which had died at the age of one and one-half years; the other is yet living. The man had not been previously infected. She had two more children by him, one of which died from congenital syphilis, but the other survived and had been healthy. The mother was free from glandular swellings or other evidences of syphilis. A nine-year-old child had been infected by the child which died and developed primary lesion on the lip, from which the man's eyelid became infected. The disease pursued the usual course in man and child, but was exceptionally severe.

Peripheral Scotomata in Glaucoma.

SIMON, RICHARD, (*Centralb. f. Augenheilk*, April, 1896,) states that, although the existence of central and paracentral scotomata have long been known, peripheral forms have only recently been recognized as existing in glaucoma. The recognition of scotomata is of considerable importance as regards prognosis, for where such are found it is unfavorable even though iridectomy be practiced. Peripheral

scotomata are frequently beginnings of sectorial defects which are formed by increase and spreading to the periphery. These are occasionally "arc-like." Iridectomy sometimes limits the progress of scotomata and contraction of the visual field. The blind spot should first be found in order to accustom the patient to seeing such defects, which can only be recognized by intelligent and trained patients. It is necessary to use very small test objects, and Simon recommends perimeter squares of $\frac{1}{3}$ *mm.*, mounted on the end of a small, thin rod. Some cases with diminished vision need larger objects even than 5 *mm.* for the taking of the visual field. He has noticed decided contraction of the visual fields by dim light and by the use of gray test objects. Four cases, with ten diagrams of the visual field, are given.

Cryptoglioma Retinae.

SCHOBL, J., (*Centralb. f. Augenheilk*, May-June, 1896,) esteems cryptoglioma to be a true opposite to pseudo-glioma. It is discovered during its course, and necropsy proves its nature. Pseudo-gliomata are those cases which have the appearances of and have been diagnosed as gliomata, but which, after enucleation, are proven to be other than tumors.

Pseudo-glioma is but a name for a mistake in diagnosis and should be made less and less as we learn more about ocular tumors. The term crypto-glioma is reserved for a few cases which at first might be diagnosed as pseudo-glioma but which later take on the symptoms of true glioma. Such cases begin with inflammation, the eyeball shrinking and becoming atrophic, a tumor growing later.

He has had an interesting case in a female child of three years who had a whitish reflex in one eye, otherwise normal except whitish-yellow masses in the vitreous. No neoplastic blood-vessels; tension normal; vision movement of hand at one meter; enucleation refused. Later tension increased. Inflammation set in; pupil small; cornea became clear; much pain; no vision. A consultant declared for iridocyclitis. Tension became minus 2,

but two months later was plus 1. In the third month the child died of diphtheria; eye enucleated, being then somewhat shrunken, and sclera became thickened. The anterior chamber was shallow, the iris infiltrated; the anterior capsule of the lens thickened and the pupil filled with irido-cyclitic product, round and spindle cells, connective tissue corpuscles and neo-plastic blood vessels, were found behind the lens. The vitreous chamber was filled with necrobiotic products of retrograde metamorphosis of gliomatous elements which did not stain to hæmatoxylin. The optic nerve, choroid and retina were very much thickened and filled with gliomatous cells. He considers that the primary disease was retinal glioma which infiltrated the other tissues and was partly absorbed on account of the acute iridocyclitis undergoing retrograde metamorphosis and causing the clinical picture of atrophy of the bulb, but later the nerve and the choroid became more infiltrated and the tumor grew, causing more tension.

He cites another case in which gliomata existed in both eyes. In the right the first pathological change was a yellowish reflex, followed twenty months later by so-called purulent choroiditis with perforation. Enucleation of the right eye some months afterward showed an enlarged ovoid eye, in section of which neither the iris, choroid or lens could be found and in which by staining with hæmatoxylin true glioma cells were found. The optic nerve was very much thickened and infiltrated with glioma cells. Healing followed after the enucleation, but a few months later the tumor reappeared in the orbit. The left eye had a whitish-yellow tumor in the anterior chamber, extending from the temporal side, and this eye acquired extasia bulbi through keratitis. As nothing could be done, the case was treated symptomatically and died about a year after the first examination. Post mortem was not obtained, but small pieces of the tumor from the right and left side were obtained for microscopic examination, which proved to be true glioma and not glio-sarcoma.

The literature of crypto-gliomata is quoted.

Traumatic Diseases of the Macula Lutea.

SIEGFRIED, (*Beitr. z. Augenheilk, Heft XXII.*, 1896,),

gives an interesting article of 57 pages dealing with traumatic lesions of the macula lutea.

Prof. Haab had, during the years 1889-1894, 8,279 private patients and 18,409 clinical cases. Of these there was diagnosis of traumatic diseases of the macula in 38 private cases, *i. e.*, 0.47%, and 42 clinic patients, 0.25%. In many of these there were also serious wounds of the conjunctiva, sclera, cornea and bleeding into the anterior chamber. The causes were as follows: Blows from blunt objects; foreign bodies in the eye; orbital tumors; from direct sunlight; an as yet little known form of sympathetic macular disease which comes on after the other eye has been destroyed through trauma.

The traumatic origin of some diseases of the macula is of scientific as well as forensic importance, because many persons who complain of loss of vision after injuries have been accused of simulation, on account of the very slight changes in the macula lutea, which had escaped observation. Macular disease is often of long duration and sometimes comes a long time after the injury.

Berlin has described an edema of the retina (commotio retinae) which occurs a few days after the injury and usually completely disappears, but sometimes leaves a fine dotting.

In 25 more cases of macular disease "Berlinische Trübungs Schwellung" was not to be recognized at the time of the examination. There were 12 cases of direct macular disease from foreign bodies, mostly particles of steel, in which ophthalmic examination was made and the particles seen. One case of chronic inflammation of the orbit followed erysipelas which simulated tumor and in which the macular region appeared whitish. It was followed later by perforation of the cornea, loss of vitreous and shrinking of the eyeball. In another case there was a small angioma of the macular region which showed as a dark yellowish-red spot. The eye was afterward enucleated. In another there was angioma of the orbit, which produced a change in the macular reflex, showing as fine reflex lines in the macular region, the veins and arteries being much more prominent than on the other side. Direct sunlight causes at first painful and decided blindness.

Whatever part is struck by the sunlight is soon affected. It is usually followed by diminishment of vision, with central scotoma, which is generally positive, but sometimes may be negative. He describes 18 cases. Ophthalmoscopic examination sometimes shows whitish-yellow spots in the retina or a grayish or dark spot at the fovea.

Prof. Haab has noted two cases of macular disease in the course of sympathetic ophthalmia, which was seen by the ophthalmoscope as isolated disease confined to the fovea, although the periphery of the retina shows at the same time some changes. The zone between the macula and periphery remains apparently unaffected. He states that sympathetic ophthalmia taking this form is quite rare, and describes two cases. This affection seems more likely to arise in the sympathizing eye when the foreign body or injury is in the retina of the injured eye. Such eyes have not yet been examined microscopically, which would give more information on the subject, as it is not yet known whether the changes are in the retinal pigment or in the chorio-capillaris.

Upon Amyloid Degeneration of the Conjunctiva.

KAMOCKI (*Beitr. z. Augenheilk, Heft XXII*, 1896,) says that although amyloid degeneration is certainly a very uncommon affection of the conjunctiva, he had found over forty observations of the disease in the literature. In many of these there was no cachexia or observable degeneration in other organs. He cites a case occurring in a countryman, aged 35, who had trachoma of the right eye in the hypertrophic stage. The left eyelid hung down and could not be raised by the levator on account of the weight of the thickened tarsus. The under lid was enlarged, but there was enormous hypertrophy of the retrotarsal fold of the upper lid, which was yellowish-red and elastic. The tumor was removed from the upper lid. After the operation there was much bleeding under the skin. Healing was good. Microscopic examination after hardening showed enormous thickening. The epithelium consisted of four or five layers of cells, the deepest appeared cylin-

drical. The outer layers were horny-like. Under the epithelium was a thin layer of adenoid tissue and under this great degeneration of the entire parenchyma of the retrotarsal fold, consisting of hyalin bundles in fibrous tissue mixed up with leucocytes. In the inner part of the tumor the degenerated tissue was without structure, as atrophy of the cells had taken place. He did not find micro-organisms, such as have previously been described by Kruch and Fumagalli, who found the staphylococcus pyogenes albus and the bacillus Lœffleri, occurring in hyalin degeneration. (See also *Ann. d'Oculistique*, July, 1894, page 39.)

Inflammation of the Cornea.

GRAWITZ (*Archiv. f. Path., Anat., Phys. u. s. Klin. Med., Band 144, Heft 1*, April 10, 1896,) upholds previous statements made in his Atlas of Pathological Anatomy that corneal infiltration is the result of an increase in the nuclei of the corneal cells and of a formation of cells in the intercellular substance which otherwise are cell free, and that the immigration theory of diapodesis of leucocytes from the sclera and conjunctiva is not so probable. He has experimented by transplantation of living, of dead and diseased corneal tissue in frogs, chickens, rabbits and fish. His results uphold the cellular pathology theory that inflammation is a reaction of injured or diseased living tissue on account of increased nutrition and that the juices of the tissues may hold red and white blood corpuscles, but that suppuration may occur without the necessity for diapodesis from the sclera and conjunctiva of white blood corpuscles into the corneal tissue.

Tuberculosis of the Eye and Brain in a Calf.

FISHOEDER (*Centralb. f. Bakt. Paras. u. Infectionskr., No. 14-15, Bd. XIX.*, April 25, 1896, *orig. in Zeitschr. f. Fleisch u. Milchhygiene*, 1895, 6, H. 2,) saw an emaciated calf four months old whose lungs and lymph glands showed tuberculosis, the left eyeball protruded and had a

bean-like thickening on the sclera and corneal limbus on temporal side. The neighboring cornea was infiltrated, the growth extended into the retina. It was oval, 1 *cm.* long and 5 *mm.* thick. Microscopic examination showed tuberculosis in all of the coats. There were tubercular nodules in the brain substance and membranes. Fischoeder could not decide if the disease were congenital, as the parent animals were not known.

The Syphilitic Nature of Interstitial Keratitis and its Relations to Joint Affections.

BOSSE, B. (*Ueber die Interstitielle Keratitis Hereditar-luetischer Natur und Ihren Zusammenhang mit Gelenkaffectionen; Inaugural Dissertation, Berlin*, 1895. See also *Deutsche ed. Wochenschr.*, April 30, No. 18.) In the eye clinic of the University of Berlin observations have been made for several years upon the probability of the connection of interstitial keratitis and joint affections with hereditary syphilis. Bosse has taken pains to inquire into the relation of the two affections, which had not yet been done in the literature. He examined 54 persons from time to time who had interstitial keratitis. Hereditary syphilis was known to exist in 44 instances, and in 6 others it was probable. In only 4 was there chlorosis or tuberculosis; 37% of all the luetic cases (17) had joint affections. Syphilis was the only probable factor in all of these. The disease in 14 cases was in the knee; in the elbow in 3. It is generally present on both sides. Most of these cases had no fever. Bosse recommends iodid of potassium in hereditary luetic cases with joint affections. In children inunction is likewise recommended.

Further Contributions to Blepharoplasty.

UHTHOFF (*Deutsche Med. Wochenschr., XI.*, March 12, 1896,) describes another case of plastic operation upon the eyelids where the whole lower lid was lost on account of carcinoma. In this case the conjunctiva was replaced by a long flap of mucous membrane from the lip and healed well. The lid itself was made by a flap from the temple after the method of Fricke. He shows a photograph of

another case taken eight months after operation where the whole lower lid had been lost, in which the conjunctiva had been replaced by an apron-like flap from the upper lid. Fricke's and other operations where the skin is brought against the eyeball, on account of numerous small hairs rubbing against the cornea, sometimes produce pannus and the modification of Uhthoff is an improvement. In closing he describes other forms of blepharoplastic operations and quotes the literature on the subject.

Congenital Limitation of Ocular Movements Through Retraction of the Orbital Fascia.

TURK, S., (*Deutsche Med. Wochenschr., XIII.*, March 26, 1896,) describes a form of congenital retraction of the orbital fascia which limits the movements of the ocular muscles and the globe. Under normal conditions the full effect of contraction of the recti muscles is expended upon turning the eyeball around its rotating point. Deviation occurs either through muscular abnormality or interference by retraction of the fascia.

In his cases the latter condition was well demonstrated by fixing the eyeball by forceps and turning in different meridians. The globe sinks inwards together with the eyeball from 1 to 3 *mm*. This is especially noticeable for the lateral movements where narrowing of the ocular commissure also occurs. Diagnosis of this condition has seldom been made, and as it is an uncommon phenomenon it is likely that some of the cases reported in the literature as congenital ocular paralysis may be of this character.

Ichthyosis and Eye Disease.

HÜBNER (*Deutsche Med. Wochenschr., XIV.*, April 2, 1896,) at a meeting of the Medicinische Gesellschaft in Giessen, October 29, 1895, reported three cases of ichthyosis simplex, accompanied by ocular changes. In one there was a high degree of contraction of the tarsal skin, so that it was impossible to close the eyelids. In two others this contraction had caused ectropion of the lower lids. In a woman there was attachment of the conjunctiva to the cornea. This condition is accompanied by catarrhal

conjunctivitis, together with atrophy and shrinking of the membrane without cicatrices and ablation of the lower retrotarsal fold, with partial symblepharon. (Essential atrophy of the conjunctiva of Graefe.)

Extraction of Iron From Retina Near Optic Nerve With Resulting Normal Vision.

BERTRAM (*Deutsche Med. Wochenschr., XV.*, April 9, 1896,) at a meeting of the Aertzliche Verein in Dusseldorf, May 6, 1895, reported a case of a man who four days before had a piece of iron fly into the eye, making a wound 2 *mm.* long near the insertion of the right internal rectus muscle. The eye was inflamed and painful. When the pupil was dilated, a blood clot in the vitreous, in the midst of which was a four-cornered object near the upper part of the papilla, was seen. The eye was flushed by sublimat solution and deep narcosis being induced and a longitudinal incision made in the sclera, a piece of iron weighing 18 *mgr.* was extracted by a Hirschberg magnet. The resulting vision was normal, the visual field showing only enlargement of the blind spot.

Hydrops of Lachrymal Sac.

STUTZER (*Deutsche Med. Wochenschr., XVI.*, April 16,) at the Griefswalder Med. Verein, November 2, 1895, demonstrated a case of hydrops of the lachrymal sac in a woman who had tumor of the size of a walnut on the nasal side of the lower eyelid. The tumor was so large that it interfered with the sight.

Pulsating Traumatic Exophthalmus.

FRANCKE (*Deutsche Med. Wochenschr., XVI.*, April 16,) at the Griefswalder Med. Verein, November 2, 1895,) demonstrated a case of pulsating exophthalmus in a woman who fell from a wagon forward between the horses. She was immediately taken to a hospital and put in bed, after which she felt fairly well. On the third day she got up, but during the night she had great headache and since hat time could sleep but little. The sense of sight was

immediately lost. She did not know that the eye protruded. There was no bleeding from the ear or nose. Exophthalmus of the left eye followed, so much so that the lid did not cover it. The conjunctiva and the lower part of the cornea is chemosed and hangs over the eyelids; the upper lid is partly swollen, of a purplish color and full of a venus plexus. The pupils are the same; that of the injured eye reacts only consensually with the right. The papilla was at first normal but afterwards showed increase in the size of the veins, the arteries remaining normal. The impulse of the heart can be felt on the eye synchronously with that of the carotid. With the stethoscope the noise can be heard all over the head, especially loud on the eyeball. The patient hears it herself on standing. He advises compression of the carotid for 24 hours, when, if the exophthalmus does not disappear, the common carotid should be tied.

Deafness of White Animals With Blue Eyes.

RAWITZ (*Deutsche Med. Wochenschr., XVI.*, April 16, 1896,) at a meeting of the Physiologische Gesellschaft in Berlin, March 16, 1896, referred to Darwin's and Buffons' statements regarding the deafness of white cats and dogs with blue eyes. Anatomical observations had not heretofore been made. He had examined the ear and brain of a white blue-eyed Dalmatian hound and found atrophy of the temple lobes which were reduced to a third of their normal volume from complete atrophy of the third convolution. The cochlea was undeveloped and the ossicula ankylosed.

The Pathology of Glioma Retinae.

GREEFF (*Deutsche Med. Wochenschr.*, No. 21, 1896; see also *Centralb. f. Augenheilk.*, June, 1896.) considers retinal gliomata to be developed from pre-existing embryonal cells. These growths are composed of hyperplastic glia-cells in a network of fibrous tissue in which are ganglion cells and nerve fibers. This construction answers to the description of neuro-glioma ganglionare.

Thiersch Grafts After Pemphigus Cornea.

FRANKE (*Münchener Med. Woch., XIII.*, March

1896,) showed at a meeting of the Aertzliche Verein in Hamburg a case which had pemphigus of the conjunctiva and cornea and symblepharon in which thorough transplantation of Thiersch grafts upon the cornea after removal of the pterygium-like growth had stopped the progress of the latter affection and had controlled the case for three-quarters of a year. This treatment of this rather uncommon affection is new.

The Toxemia of Exophthalmic Goiter.

LEMKE (*Münchener Med. Woch.*, *XV.*, April 14, 1896,) concludes that Basedow's disease is not a nerve disease, and that it cannot be that the toxin of the struma is a nerve poison. He shows that the most constant symptoms lie in the muscular system, especially in the heart muscle and the cross-striped muscles. He thinks that the poison of the struma is a specific muscle poison which stimulates the normal physiological muscular tone which changes the act of contraction into little irregular stimuli, making the action of the muscle slow, difficult and unsafe. This causes tachycardia or delirium cordis and the muscular tremor. From this condition arises dilatation of the heart and atrophy in the striped muscular fibers. This is not so noticeable in the muscles which are attached to the bone, but is especially in the eye. On account of the lengthening and weakening of the eye muscles and through the force of the blood current the ball is pushed forward. He is certain that all of these symptoms depend upon the loss of muscular function. He states that Graefe's phenomenon is not from inco-ordination but from difficult, slow and unsafe action of the sphincter palpebrarum; Stellwag's as well as Moebus' symptoms are due to the same cause. The inactivity of the pupils is caused by the same in the sphincter and dilator pupillæ. The head symptoms, headache, dizziness, peevishness, melancholia, arise from disease of the muscular coat of the brain blood vessels on account of which they become overfilled with blood. Previous authors have considered this to be arterial hyperemia. The lung symptoms of asthma, bleeding, coughing; the kidney symptoms, as

polyuria; the skin symptoms, the flushing or hyperhydrosis; the vomiting and indigestion, etc., follow from the same condition. He has cured a number of cases by partial extirpation of the struma.

Upon the Value of Eucain in Ophthalmic Practice.

VOLLERT, RICHARD, (*Munchener Med. Wochenschr.* XXII., June 2, 1896,) has used Eucain, a drug which has been recently brought forward by the chemical factory of Actien (formerly Schering) as a new local anesthetic. Eucain has like cocain a very long chemical name and formula (Methyl-benzoyl-tetramethyl-gamma-oxypi-peredine-carbonic acid-methylester) $C_{19}H_{27}NO_4CHL\ H_2O$. The muriate is in shining plates and also crystallizes in shining prisms from methylic alcohol. Both are soluble to 6% in water at ordinary temperature. The base is with difficulty soluble in water, but with HCL makes a very soluble salt which remains anesthetic when heated, and is also soluble in $\frac{1}{5}$% sublimat solution. When dropped in the eye in a 5% solution it produces painful irritation lasting for one or two minutes (longer than cocain and more irritating). Considerable injection of the conjunctival and ciliary vessels with first lessened and later heightened tension follows. Anesthesia of the cornea and conjunctiva is secured in two to three minutes, lasting for 8 to 12 minutes and disappears entirely in 15 minutes, causing little or no action upon the pupil or accommodation. Eucain, like cocain, impairs the corneal epithelium (perhaps more than the latter). On account of its feeble action in producing mydriasis and paresis of the accommodation it may be useful as an anesthetic in selected cases. Vollert, however, does not think that our old friend cocain will be superseded by this new drug, principally on account of the irritative effect of the latter.

Eucain, a New Local Anesthetic.

VINCI (*Deutsche Med. Zeitung*, XXXIV., April 27, 1896,) has experimented with this new compound from the laboratory of Prof. Liebreich. Instilled into the eye of an animal in 2 to 5% solution it causes complete local anesthesia in from one to three minutes, beginning with the cornea, spreading to the conjunctiva and lasting on an average

from ten to twenty minutes; pupil does not dilate. Injected under the skin or painted on the mucosa complete anesthesia follows. General action as a poison shows excitation of the central nervous system, followed by paralysis, going on to death.

Eucain is physiologically similar to cocain, but is less poisonous. It causes no ischemia; on the contrary vascular dilatation occurs and in ophthalmic practice it may be employed where the former is not desired. In the eye the pupils are not affected; mydriasis does not occur and reaction to light remains normal. The drug was tried in Prof. Schweigger's Ophthalmological Department at the University Clinic in Berlin with the same result. Patients complain of transitory burning, but only when the methyl-alcohol preparation was used; therefore the watery solution is to be preferred for practical use. Cocain and eucain diminish the intraocular pressure about equally. Eucain solutions are permanent and do not, like those of cocain, decompose when kept or when boiled. (The Editor notes that Schleich of Berlin recommends eucain for infiltration anesthesia in 1 to 2% solutions, saying that he had not met with a single case of poisoning, and judging from his experience that for pure contact-anesthesia by painting the solution over the mucosa it should replace cocain. The drug has been also used by Warnekros and Kiesel, dentists, of Berlin for local anesthesia in extracting teeth.)

The Electrical Treatment of Ocular Inflammation.

Von Reuss (*Wien Klin Woch.*, XX., May 14, 1896; see also British Medical Journal, June 13, 1896,) has used the electrical method in treating ocular inflammations for more than ten years, in many cases with considerable advantage. This is particularly marked in scleritis in which the pain is invariably lessened and the disease often cut short. The one electrode is held, preferably by the patient himself, on the forehead or cheek, the other is placed directly upon the conjunctiva. It consists of an elliptical platinum plate $\frac{1}{3}$ in. long and $\frac{1}{4}$ in. broad fixed on a thin, flexible stem and isolated by means of varnish; the handle is $\frac{1}{2}$ in. long, as thick as a lead pencil, and provided with

an interrupter. The eye is cocainized and the electrode applied directly to the scleritic patch; the sensitiveness of the patient determines the strength of the current and whether the anode or cathode is to be used. The ordinary strength is 1 to 1.5 milliamperes, and the length of the sitting a minute to a minute and a half. The immediate effect is a marked increase in the injection in the neighborhood of the part treated, which passes away in a few hours; there is an unpleasant but seldom a painful sensation. In many cases the subjective and even the objective signs are relieved by the first application; more than 10 or 12 sittings (on alternate days) are rarely necessary, and Von Reuss has known the treatment to fail only in two cases in which it was methodically carried out. It is of particular value where the pain is marked, never failing to give complete and immediate relief (*sic*). In iritis and iridocyclitis similarly good results are obtained especially in old-standing cases, in which the apparatus can be left at the patient's house and one of his family instructed in its use. Here, however, although the relief of pain is very marked, it is not yet certain that electrical treatment cuts short the disease; possibly better results might follow more prolonged applications In keratitis, again, pain is undoubtedly alleviated, but the author has not been able to satisfy himself that the disease itself is affected. He has used the method in other affections, but as yet without very convincing results.

The Nature of Exophthalmic Goiter.

MARTIUS (*Berliner Klinik*, May, 1896; *see also British Med. Journal*, June, 6, 1896,) considers that the conflicting theories of the disease are due more to the cardinal symptoms being regarded as the disease itself, whereas, it is in reality an affection more or less of every system and organ of the body. The theory which localizes the lesion in the medula is unsupported by pathological evidence; likewise the sympathetic theory which fails to explain the tremor, and the disordered impulses which do not pass down from the cortex to the muscles along the sympathetic. The peripheral nerves are not originators but conductors o

impulses. Experimental evidence based upon section or stimulation of their fibers is therefore valueless as an indication of the condition of the nerve cells, which is the all-important factor in disease. Occasionally disease of the sympathetic may be found to have been produced by one or other sequelae of exophthalmic goiter, but the chain and ganglia are invariably found to be healthy. Martius concludes that the congeries of symptoms depends essentially on functional disturbances of the central nervous system. The researches of Goffroy, Greenfield and others have shown that the enlargement of the thyriod is not due only to vascular dilatation, the result of disordered inervation, but to specific hyperplasia in the crypts in which colloid material is either absent or much changed chemically. Pathologically, exophthalmic goiter is very sharply marked off on the one hand from nervous diseases, having an anatomical basis, and on the other from functional affections such as hysteria and neurasthenia. It resembles much more closely in its symptomatology chronic intoxications, such as mercurialism and alcoholism, and this resemblance is not diminished by the fact that Grave's disease often appears to take origin from a fright or some other psychical disturbance. The acute symptoms of alcoholism (delirium tremens) and of plumbism are often evoked by action of apparently slight external causes upon systems or impregnated with the poisons, and the appearance of symptoms of exophthalmic goiter may also date from similar causes in the course of chronic intoxication from the disturbed action of the thyroid gland. With this may also be compared the onset of uremia in cases of granular contracted kidney. Martius therefore concludes that exophthalmic goiter is a chronic poisoning of the whole nervous system, but that the evidence at present available is insufficient to settle the question as to whether the diseased thyroid gland produces poison or inhibits its destruction.

Review of our Knowledge Concerning the Structure of the Retina in the Year 1895.

KRAUSE (*Schmidt's Jahrbücher der Gesammten Med., Band 249, No. 1*, Jan. 5, 1896,) discusses the history of our knowledge of the retina in man and animals, divid-

ing the microscopic knowledge into three so-called periods; that beginning with the era of Heinrich Mueller in 1851, which he calls the "chromic acid period" on account of this method being used in preparing the microscopic sections; the second period, 1866, the "osmic acid period," and the third the "silver chromate and methol blue," the latter of which gives the most satisfaction in the study of the retinal elements. The comparative anatomy and embryology of our knowledge of the intimate anatomy of the retina is minutely and specifically described. (Continued in No. 2.)

Enucleation and Evisceration.

LAMHOFER (*Schmidt's Jahresb. der Gesammten Med., Band 249, No. 3, page 280*, 1896,) in reviewing the following articles says that the disputed question of enucleation or evisceration could not be determined by his experience. Anyone who has done twenty eviscerations and in the 21st case has seen sympathetic ophthalmia follow, in the 22nd case will enucleate, and anyone who has had many favorable enucleations and perhaps has a case of meningitis will in the future be apt to return to evisceration or even to the formerly recommended incision of the panophthalmitic eye. For this reason has Pflüger, who has practiced enucleation in panophthalmitis for many years, gone to evisceration as being the less dangerous operation, and although Stocker has had 41 favorable enucleations he speaks in favor of evisceration.

Enucleation in Panophthalmitis.

STOCKER (*Corr. Bl. f. Schweitzer Aerzte, XXI.*, 1, 1896,) says that in 41 cases of fulminating panophthalmitis he had practiced enucleation without an ill result. Personally he prefers enucleation to evisceration. If the cocci and bacteria are shut in by the ocular capsule eneucleation is safer, but if bacteria and the toxins are already in the orbit then it is possible that evisceration renders the part more safe from infection and it may be better drained. If careful antiseptics is practiced there is no reason to fear inflammation of the brain.

Enucleation and Evisceration.

PFLUGER, E., (*Corr. Bl. f. Schweitzer Aerzte, XXI*, 1,

1896) concludes that enucleation is the only sure preventive against sympathetic ophthalmia, but he prefers evisceration after panophthalmitis has set in for the reason that although in previous years he had not had any unlucky cases he had been alarmed on account of reports of cases of meningitis and death after enucleation. Evisceration has an advantage in that it leaves a larger stump.

Trachoma in the Rhine Provinces.

PROBSTING. (*Centralb. f. Allgeshpfl., XV*, 1896.) This paper is of considerable interest on account of the extension of trachoma in Germany, especially in the vicinity of the Rhine valley. Probsting has had reports from a number of oculists near the Rhine. Trachoma is not as common in South and Middle Germany as it is in North Germany and the Rhine provinces. As a rule, trachoma takes a course from the east to the west. In 1000 soldiers he found trachoma 51% in Tilsit, Graudenz 24%, in Possen 7%, in Breslau 2.6% and in Berlin .6% trachomatous. Rehlmann states that 96% of eye patients in the Universitat-Klinik in Dorpat have trachoma. In the upper Rhine and in Switzerland trachoma is not seen. In Mainz it is only sporadic. In Mainz alone in 1818 there was a severe epidemic of trachoma. Now about 1% of the eye patients have trachoma. About the same is observed in Kreuznach and in Wiesbaden. In Frankfort the disease is more common and in Giessen and Marburg it exists in the proportion of 5.86% to 6.8%. Leucanus states that 2% of all the inhabitants of Marburg, Biedenkopf, Frankenburg, Kuchhein, Ziegenhein have trachoma. He gives further statistics regarding the other Rhine provinces, showing that trachoma is relatively common. Cases are common in Holland, especially among the Jewish folk. In 1893 it is estimated that from 18% to 50% of the children in the Jewish schools had trachoma. It is also common in Belgium.

Probsting recommends state supervision for hygiene of schools and concludes that such would diminish this disease.

ABSTRACTS FROM RECENT FRENCH AND ITALIAN OPHTHALMIC LITERATURE.

By Casey A. Wood, M. D.,

The Leptothrix Buccalis and Pyogenic Microorganisms of Salivary Origin in Affections, of the Tear passages.—Bilateral Anophthalmus and Epicanthus in a Child Whose Mother had Congenital Absence of the Right Eyeball.—Traumatic transplantation of Eyelashes Upon the Ocular Conjunctiva.—Report of the Geographical Distribution of Trachoma.

The Leptothix Buccalis and Pyogenic Micro-organisms of Salivary Orgin in Affections of the Tear Passages

Basevi,* after dwelling upon the important part played by bacteria infesting the mouth and nasal passages in diseases af the ocular structures, gives the following history of a case in point that came under his notice. A healthy woman, 34 years of age, presented herself with a left oculopalpebral conjunctivitis that for several weeks had resisted all attempts to cure. A careful examination of the lid margins showed the presence of a grayish body obstructing the lower punctum. He made slight pressure along the course of the corresponding canaliculus and a gray collection was extruded, followed by purulent matter. On slitting up the canal a quanity of thick offensive pus flowed out that was collected for subsequent examination. A 1:2000 solution of mercuric chloride was then injected and in a few days complete recovery followed.

A bacteriological examination showed in the purulent discharge a number of microorganisms of salivary origin—especially the leptothrix buccalis (oidium) and staphylococci. On being questioned the patient said she had been

*Vittorio Basevi. La leptotrix buccalis ed i microorganismi piogeni salivari nelle affezioni dei condotti lagrimali. *Annali di Ottalmologia* Fasc. 2—3. 1896. p. 274.

in the habit of rubbing the edges of the eyelids with her own saliva.

A small quanity of the pus having been placed under the tail of a rat the animal died in a short time. The corneae of rabbits inoculated with the same discharge showed deep ulceration after a day or two.

Bilateral Anophthalmus and Epicanthus in a Child Whose Mother had Congenital Absence of the Right Eyeball.

Lafosse,* of Jacksonville, Florida, gives an account of a boy aged 2½ years, born without eyes. The child was otherwise well developed and seemed to be in all respects healthy. The epicanthus was more marked on the right side and the lids were normal but the interpalpebral spaces were rather small. On opening the lids not the slightest trace could be discovered of an eyeball. The locality of the optic nerve was indicated by a small, whitish, slit-like depression that exhibited slight movements. At the internal canthus there were several small whitish glands, remains of the caruncle. The lachrymal apparatus was normal; the orbits were well formed but smaller than usual.

The head and face seemed well developed. One peculiarity of the case was that the child had a habit of remaining quietly in whatever position he was placed. If he were stood upright with an arm raised, he made no effort to stir until some one moved him.

He made no effort to walk and if pushed slightly forward he allowed himself to fall rather than attempt to take a step. On the other hand he appeared to be perfectly intelligent. When hungry he made known his desire for food by a peculiar cry. Placed on a bed he frequently extended his arms and legs and rolled from one side to the other.

Very little is known about the parents except that the mother (a German) has a right sided anophthalmus but she could give no account of her ancestors. Although in good health her intelligence is below the average. She gave her own (maternal impression) explanation of the absence of the right eye, viz; that her mother, when *enceinte* with

*Victor Lafosse. Anophthalmie bilaterale et épicanthis chez un enfant dont la mére présentait l'absence congénitale du globe oculaire droit. *La Presse Médical belge*, 21 Juin, 1896 p. 193.

her at 5 months, ran against the corner of a door and severely injured that organ.

There is a horizontal nystagmus of the maternal left eye which she has noticed for a long time. Right side: lids well formed but smaller than the left, especially the lower lid. The orbit is smaller but the lachrymal apparatus is normal. The conjunctiva is normal but at the internal canthus are several gland-like structures, evidently the caruncle. Above and below the conjunctiva is thrown into folds, the *plicae semilunares*. There is a rudimentary globe, the size of a pea, bluish-gray in color, which moves with the other eye. The other facial organs are normal.

Since the first examination the mother has given birth to another child who is perfectly normal in all respects. The defective one was placed in the care of an intelligent woman and has learned to walk and to say a number of words.

[Examples of true Anophthalmic orbits are so exceedingly rare that some observers have denied their existence. It is claimed by Manz, if I recollect aright, that deep in the orbit, behind the conjunctival sac, bulbar remains can always be detected in apparently anophthalmic individuals when the deep tissues of the eye are carefully examined for them. One must suppose in true anophthalmus a very early interference with fœtal development, at a time when the bulbar structures are still a part of the mid-brain.]

C. A. W.

Traumatic Transplantation of Eyelashes upon the Ocular Conjunctiva.

Dr. Nuyts* of Lille gives a history of a curious case the only other example of which, so far as he has been able to find, is recorded by Logechoricow in the person of a women who was shot in the right eye. Ten days after the accident it was found that the conjunctiva had been injured and in healing an eyelash was included in the wound which had entirely cicatrized. A weaver, while unrolling an iron wire from a stick, had received a sharp blow on the eyeball at the lower part of the sclero-corneal junction.

*Nuyts. Un cas de transplantation traumatique des cils sur la conjonctive oculaire. *Recueil d'ophtalmologie*, Mai, 1896. p 276.

With the exception of a small conjunctival ecchymosis, surrounded by an inflammatory area, there was very little reaction. Later on, however, the wound instead of healing appeared to grow worse and when finally examined by Nuyts it was found that four or five cilia had been pushed through the opening in the conjuctiva. These were easily extracted by means of forceps and it was found that three of them were already closely adherent to the ball. Their extirpation was followed by a prompt recovery.

Cases where entry of eyelashes had been made into the anterior chamber are even commoner than instances of subconjunctival transplantation. In a case related by Valude the cilia had remained in the anterior chamber five months and, longest of all, one by Leviste, twelve years. In all the recorded instances inflammatory symptoms were sooner or later developed but in most of them a sufficient time elapsed to show the peculiar resistance displayed by the parts forming the anterior chamber to irritants and microbic poisons. It is much greater than that exhibited by the conjunctival structures.

Report on the Geographical Distribution of Trachoma.

At the May congress of the French Society of Ophthalmology Chibret* stated that the immunity conferred by race is either absolute or relative, that is to say, for example, certain tribes of Canadian Indians, the Iroquois, Hurons, Mic-Macs, Chippewas, Creeks etc. never contract trachoma although they are very severely attacked by other infectious diseases imported by Europeans. They are entirely immune against this disease notwithstanding the fact that their surroundings should, on *a priori* grounds, render them easy victims. American Negroes, according to Swan Burnett, are relatively free from trachoma while those negroes from the east coast of Africa, whose blood is not uncommonly mixed with that of the Semitic races, are more prone to acquire the disease than their American cousins (Von Mellingen).

Among the white races the Celts enjoy a relative immu-

*Chibert. Rapport de géographie ophtalmologique sur la trachome. *La Médicine Moderne* 16 Mai, 1896. p 316.

nity and in the central French plateau as well as in the Bavarian plateau the contagiousness of the disease is not marked among the native population.

In Cuba three great branches of the human race are represented by the negroes, the whites and the Chinese. There the black race is four times as immune as the whites and the whites are twice as immune as the Chinese. Santos Fernandez found sixteen cases of trachoma among the negroes to sixty seven among the whites and one hundred and eleven among the Chinese. Occupation plays a very insignificant part in immunity from trachoma while hygenic conditions are everywhere found to be of great importance. The lymphatic temperament and malarial infection favor the inroads of trachoma. When a high altitude is joined to a humid atmosphere and a cold climate, as in Switzerland, it is unfavorable to the extension of the disease, but that is not the case in warm and dry localities like Colorado.

ABSTRACTS FROM RECENT SPANISH OPHTHALMIC LITERATURE.

By Dr. Albert B. Hale,
of Chicago.

New Test Type Series.

In the *Gazeta Medica* (Madrid, Vol. 33, No. 7, April 1, 1896) Dr. J. Ramos has published a series of test type, basing his choice of letters on a novel application of the laws of retinal perception. Visual acuity, he says, offers a common field for the mathematician and ophthalmologist to apply their science together. This function differs in individuals, and education has much to do with it in some ways, while it does not always enhance it.

Two points of light are seen as one or two according to their distance apart, other things being equal; a condition of approximation must be finally reached where they are indistinguishable.

O I

C

O′ I′

Let O O′ be the two points in space, and I I′ two retinal elements; then O C O′ is the angle subtended by these two points, and the farther apart they must be before the retina can perceive them as two points, the less is the isolating faculty of the retina. In other words, retinal acuity is inversely proportional to this angle. (The author thinks the faculty is one of education, not of intuition.) Ophthalmology seeks to determine the near value of this angle. Since O O′ are the points looked at, I I′ the retinal areas,

$$\frac{O\,O'}{I\,I'} = \frac{O\,C}{I'\,C}.$$

The idea is to find the size of the retinal element I I′ anat-

omically, and the visual acuity physiologically. Since O C O′ is very small, we may call angle

$$V = \frac{O\,O'}{O\,C},$$

and working with trigonometry, Bardier, of Bordeaux, reduced the formula to determine that two impressions may be made on the retina only O.OO22 mm apart, before they become pressed into one.

Vision (V) is naturally directly proportional to the size of the object, or with the same object, it is inversely proportional to its distance off; measuring visual acuity therefore as the retinal perception of the same object at different distances, the expression for it ought to be

$$\frac{I}{V}.$$

There are two methods of finding V (or $\frac{I}{V}$).

Either to employ the same object at different distances, or to employ different objects at the same distance. The latter is the better method. Experience has shown that *5 meters* is the best distance, and *5 minutes* the test angle for the near retinal perception. The author regrets that Nicatis' scales are calculated for a distance of 3.5m., for he could then insert these scales as types of his own measurements, although he thinks that visual acuity is expressed better by logarithmic than by arithmetic proportions. Taking 5m. as the best working distance, he decides then that at 5m. an object with dimensions of 7^5 mm. ought to express V=I. (Elaborate mathematical formulae are used in the discussion, which the reviewer has omitted.) The author thinks we should express V in decimal terms as follows: V=1.—0.9—0.8—0.7—etc. His scale reads thus (for 5m.)

V=0.1, letters are 75 mm. large.
V=0.2, " " 58 " "
V=0.3, " " 45 " "
V=0.4, " " 35 " "
V=0.5, " " 27 " "
V=0.6, " " 21 " "
V=0.7, " " $14.^5$ " "

V=0.8, " " 12.5 " "
V=0.9, " " 9.5 " "
V=1.0, " " 7.5 " "
V=1.1, " " 5.5 " "
V=1.2, " " 3.5 " "

The Roentgen Rays in Ophthalmology.

In the *Revista de Ciencias Medicas* (Barcelona) April, 1896, (No. 7) a reporter reviews the work so far accomplished in the restricted field of ophthalmology by the application of the Roentgen rays, and although he notices some very practical experiments, he feels that up till now no satisfactory use has been made of them, and that we must therefore conclude that the ordinary and well tried methods of examination must continue to be relied upon for a diagnosis.

Cocain.

Dr. J. Santos Fernandez, (Chronica Medica y Quirurgica de la Habana, March, 1896,) has a good resume of the ophthalmic uses of cocain. He finds it of but little service for plastic operations about the lids and face, and treacherous in iridectomy for acute glaucoma, but otherwise cocain is most trustworthy, and often supplants chloroform in enucleation.

Papilloma of the Conjunctiva.

In the same journal (No. 8, April, '96,) he reports two cases of papilloma of the conjunctiva, both confirmed by microscopical examination. Case I was a man, 60 years old, with the growth on the left eye, just below the cornea, looking like a small strawberry. It was snipped off but bled freely, so that the cautery had to be used. There was no return of the growth. Case II was in a woman of 40, the growth looking like a pea in the external canthus of the left eye. This was excised twice under cocain, but each time returned, and not till a third operation under chloroform, with radical application of the cautery, did it cease to grow. In every sense this seemed like an epithelioma, but the microscope showed no such structure, and

its final obliteration with the cautery confirmed the first diagnosis of its simple character.

Exostosis of the Orbit.

In No. 8 (May, '96) Fernandez reports a case of exostosis of the right orbit arising from the floor, that is, from the superior maxilla, rather contrary to the accepted rule. The patient was a lad of 14 years, who was kept under observation some time, although operation was refused. Suppuration of the contents of the orbit was the final result, so that death came by exhaustión.

Leprosy Serum in Ophthalmic and Otologic Therapeutics.

El Siglo Medico (No. 2,198, Feb. 9, 1886) of Madrid, publishes an official resume (from the *Academia Nacional de Medicina de la Republica de Colombia, en Bogota*) of an article by Dr. Juan de Dios Carrasquilla, concerning the employment of his anti-leprosy serum. The results obtained in 15 cases of undoubted leprosy are indeed encouraging, and so great is the interest aroused in this work that the government of Colombia has decided to establish an Instituto Carrasquilla for the prosecution of the study. The general methods and results of the treatment may be omitted, but it is desirable here to report only the effect on the eye and the ear.

Each one of the fifteen cases is mentioned in detail, but as a general statement it may be said that the ears, often enormously swollen, full of tubercles and very livid, showed a noticeable effort to return to the normal condition. The size of the lobe diminished, the discoloration of the skin receded, and the tubercles and cicatrices appeared to fade away. The nose became more nearly natural and the nasal irritation subsided. Edema of both organs disappeared.

In the eyes the conjunctiva lost its injection, minute tubercles at the ciliary edges of the lids disappeared, and lachrymation ceased. In fact, the whole mucous membrane took on the semblance of healthy tissue.

These changes applied both to the anesthetic and tubercular form of leprosy.

Operations in the Ophthalmic Institute, Madrid.

El Siglo Medico (Feb. 16, 96,) has an article by Dr. Santa Cruz tabulating the operations performed in the Instituto Oftalmico (Madrid) for 1895. The attendance at the clinic ran about 300 a day, but in bad seasons it rose considerably above that number! Nearly one half the patients had cataracts!

During the year there were 346 cataract operations, 23 being without iridectomy. The V was obtained $\frac{2}{3}$ or above (to $\frac{1}{4}$) except in 8 cases of suppuration, in which blindness resulted (2.3% of loss). Of these 8 cases of suppuration, seven resulted from an infected tear sac, one from unknown causes. (He advises great caution in examining the tear sac.) There was only one case of iritis. Secondary cataracts were unusually rare. There was no instance of prolapse, because iridectomy had been made in all indicated cases, either as a routine operation or as an immediate prevention if the iris showed a tendency to float over the knife. The author has lost faith in the efficiency of myotics to overcome prolapse after a cataract extraction.

Artificial ripening was resorted to in many instances, and an iridectomy was always performed in such instances, with subsequent massage over the closed lids.

Dr. Santa Cruz further reports (El Siglo Medico, Madrid, April 5, 1896,) his statistics of iridectomy at the Institute Oftalmico for 1895.

IRIDECTOMY.

For cataract			305
" Artificial ripening			18
" Leucoma			48
" Irido-choroiditis			15
" Glaucoma	Acute		3
	Subacute		1
	Chronic		2
" Glaucomatous atrophy			2
" Increased tension			3
" Synechiae			2
" Newgrowth			1
" Corpus alienum			1
			401

The incision above was preferred in every instance where election was allowed. In glaucoma the author has abandoned paracentesis and sclerotomy in favor of iridectomy (or eserin in chronic cases). His experience has led to the formulation of this rule: The more acute the glaucoma, the smaller need be the amount of tissue excised by the iridectomy.

ABSTRACTS FROM CURRENT AMERICAN AND ENGLISH OPHTHALMOLOGICAL LITERATURE.

By Charles H. May, M. D.,
of New York.

Episcleritis Periodica Fugax.

By Sidney Stephenson, M. B., F. R. C. S. E. The Medical Press and Circular, Mar. 18, '96.

Mr. Stephenson points out that this disease which was described by Prof. Fuchs (British Med. Journal, Oct. 19, '95) is by no means unknown in children, amongst whom he has seen not a few examples. He gives the histories of some of the more characteristic cases that have fallen under his notice.

"The malady" the writer says, " must be familiar to most ophthalmic surgeons. It is characterized by inflammation affecting chiefly the conjunctiva of the eyeball and the underlying episcleral tissue. As implied by the name, it is of a fleeting nature, and individual attacks last from twenty-four hours to eight days. It may affect one or both eyes, is exceedingly prone to recur, and may persist for years. In some of Fuchs' cases severe photophobia and lachrymation were present, but in others, those symptoms were almost or altogether absent. A degree of pain was commonly complained of, more especially when the eye was moved or the patient attempted to accommodate. Spasm of the ciliary muscle and contraction of the pupil were noted more than once. As to etiology, Fuchs believes that in consequence of some abnormality of nutrition, the system becomes loaded with noxious substances, capable of setting up inflammation. According to his views, the exciting cause of an attack frequently lies in some external condition, such as change of temperature, He has met

with the ailment most frequently in men of middle age, less often in women."

"Although episcleritis periodica fugax is not usually a serious ailment, yet its tendency to recur gives it an importance which it would otherwise scarcely merit. It is somewhat singular that (with one doubtful exception) I have not so far met with it in a male child. This fact is more suggestive seeing that more boys than girls come under my notice. Special inquiry was made in every case as to the dependence of the affection upon disorders of menstruation, but without any very definite results. I have never seen this form of episcleritis occur in association with rheumatism or gout, nor have I been able to obtain any family history of those diseases. Two-thirds of my patients were strumous, as shown by the existence of markedly enlarged glands or by a liability to relapsing pustular affections of the skin. There seemed in these cases to be some connection between the episcleritis and ordinary phlyctenular inflammation of the conjunctiva, inasmuch as the two conditions were not infrequently observed to alternate in the same patient. A notable number of children, too, showed marginal opacities of the cornea, which in young subjects are certainly most frequently due to phlyctenular deposits. In some cases the eyes were found to get inflamed whenever the bowels were costive or the tongue coated with a thick yellowish fur. The attacks appeared to me to be often excited by some slight injury—for example, a blow or a foreign body in the eye. I was unable, however to trace any connection with atmospheric conditions.

Pain, redness, and other symptoms are, in my experience, speedily relieved by a brisk purge, followed by the instillation of the solution of the sulphate of atropin (2 grs. to the ounce). Hot fomentations, also, are useful in some cases. The effect of these remedies is enhanced if the eye be shaded, and the patient be kept from work. With the idea of preventing recurrence, a large number of agents have been employed, although, it must be confessed without any great measure of success. Thus, mercury, aconite, colchicum, quinine, salicylate of sodium, yellow ointment, blisters, the local use of calomel and nitrate of

silver, and the operation of peritomy have been tried, and, in my hands, have failed. I cannot help thinking from what I have seen of these cases that more is to be hoped from change of air than from any treatment either by drugs or by local applications to the eyes.

A word as to diagnosis. Episcleritis periodica fugax, as pointed out by Fuchs, may be confounded with two diseases, namely, ordinary episcleritis, and acute catarrhal ophthalmia. From the first it is distinguished by its rapid course, comparatively slight symptoms, and by the absence of any distinct inflammatory nodules in the sclera. From the last it may be differentiated by the scantiness or absence of secretion, as well as by the localized character of the inflammation. Acute catarrhal ophthalmia, moreover, is generally bilateral, whereas this form of episcleritis as a rule, attacks one eye alone."

The Affections of the Cornea in Plastic Iritis.

By Harry Friedenwald, A. B. M. D., Baltimore, (*Archives of Ophthalmology*,) April, 1896.

The writer claims that "*the cornea is affected in every case of iritis.* In no case does it retain its perfect transparency. The opacities consist of deposits upon Descemet's membrane and infiltration in the substantia propria. The former are constant, the latter, occasional." These opacities he divides into (1) fine deposits upon the membrane of Descemet, (2) large deposits on the membrane of Descemet, and (3) opacities of the substantia propria.

(1) *Fine deposits upon Descemet's membrane:* "These can be seen in all cases of iritis; they are usually overlooked because the methods of examination required are not generally practiced. The most satisfactory method of examination is by means of an ophthalmoscope with a strong convex lens placed between the central opening." Hirschberg who described this method used 20 D. convex; the writer found 25 to 32 D. most satisfactory. "In making these examinations it is best to use a plane mirror and subdued illumination. The deposits appear as fine points, scattered profusely throughout the pupillary area. They are very fine, so fine that even when magnified they can just be recognized as individual points. They form a layer as of

the finest dust, and stand out most prominently when the patient's eye is so directed that the background is the bright light reflected from the papilla. These dust-like deposits may be scattered over the entire cornea, but they are usually most abundant in the lower half." . . . . The fine deposits on Descemet's membrane which form the subject of this chapter, make their appearance at a very early stage of iritis and are frequently found before any synechiae are formed. They persist throughout the duration of the disease and for some time afterwards, but they finally disappear entirely. It is the deposits which cause the pupil and iris to appear blurred and hazy, and it is these deposits likewise which are often described under *muddiness of the aqueous humor. The most careful examination with the ophthalmoscope or bilateral illumination has never enabled me to discover any floating particles in the anterior chamber*, similar in appearance to the fine deposits described above." . . . . "This sign alone, though insufficient for the diagnosis of iritis, will arouse our suspicion and direct our investigation into the interior of the eyeball, where some lesion will be found on account of it. *The presence of these deposits associated with a sluggish pupil and hyperaemia of the iris, suffices to establish the diagnosis of incipient iritis*, and as the treatment of iritis cannot be begun too soon, it will help us to institute early and proper treatment."

(2) *Large deposits upon Descemet's membrane:* "These deposits have so frequently been described and are so well known under the names of 'Descemetitis,' 'Keratitis punctata,' 'aqua-capsulitis,' ' Iritis serosa,' etc., that it would be useless here to enter into a lengthy description of of this form. It is proper, however, to call attention to the fact that these deposits are likewise found in the ordinary forms of plastic iritis, scattered among the finer deposits. They make their appearance somewhat later than the latter, and usually require longer time for their total disappearance. We frequently observe the persistence of the larger deposits for some time after the disappearance of the finer ones. The investigations of Knies, Fuchs, and others have shown that while the endothelium of Descemet's membrane remains perfectly normal under the

smaller deposits, it is changed or lost under the larger ones. This may open the way for the entrance of aqueous humor into the corneal tissue and to permanent corneal opacities."

(3) *Opacities of the substantia propria:* "This class includes all the varied forms of parenchymatous inflammation observed during the course of iritis." The writer divides these into: (a) minute infiltrations in the form of fine lines, known as *keratitis striata*, or larger and broader lines which may anastomose with each other, or longer and broader infiltrations in the form of straight lines, sometimes parallel, sometimes at angles, and at times anastomosing with each other; (b) minute grey infiltrations near the periphery of the cornea, some becoming vascularized others non-vascular, and in some cases gradually becoming larger and sometimes assuming the typical picture of *circumscribed sclerotizing keratitis*; and (c) other rarer forms among which he includes a peculiar form of circumscribed keratitis the description of which corresponds most with Mauthner's *keratitis punctata vera*, but differs from it in that the opacities in this affection are small and that it is not associated with iritis. The writer gives the histories of 14 cases to illustrate these various affections of the cornea in plastic iritis.

Glaucoma Malignum.

By Prof. C. Schweigger, Berlin. (*Archives of Ophthalmology*, April, 1896.

"The term malignant glaucoma cannot be sharply defined. Von Graefe showed that there are all degrees from the most severe to those in which the course of the disease returns to the normal. The severest cases are those in which intense inflammatory signs make their appearance immediately after the iridectomy, and complete blindness follows." He refers to his report of a number of such cases in the *Archives of Ophthalmology* for 1891 in two of which puncture of the anterior chamber with complete evacuation of the aqueous humor was well borne, while the iridectomy was followed by the most serious consequences; he believes, however, that it was not the cutting out of the piece of the iris which produced the malignant course, to prove which he gives the history of a case in which, there having been

malignant glaucoma of the left eye and glaucoma having attacked the right eye, he performed sclerotomy which was followed by intense inflammatory symptoms leading finally to complete blindness.

"All that we can do, therefore, in cases of malignant glaucoma of one eye when the other eye becomes affected, is to use eserin or pilocarpin in order to postpone the blindness as long as possible. There are all degrees of severity from the most malignant to those with less unfavorable course. The inflammatory signs may be less severe, perhaps not more intense than we may find in otherwise normal cases; but the *anterior chamber remains empty.* It is to be noted that the eye may show no signs of inflammation and vision continue unchanged even though the anterior chamber remains empty." He describes three cases in which the anterior chamber had remained empty for a long period, in one case as long as four years after operation.

"It is well known that in chronic glaucoma an iridectomy may be followed by emptiness of the anterior chamber for from six to eight days (without producing any other abnormity in the process of healing), and subsequent reestablishment of the anterior chamber in a perfectly normal manner. If, as in one of the cases described, the anterior chamber remains empty for four years after the operation without any other change—and with retention of the same amount of vision as after the operation, it is evident that the closure of the angle of the anterior chamber can play no important part in the pathological process."

"*The cases in which a malignant course occurs are for the most part chronic glaucoma; still I have seen the same malignant character in cases of intense glaucomatous inflammation..*"

There is another series of cases whose course is likewise of a very malignant nature, namely those in which *the eye is destroyed by intraocular hemorrhage following an iridectomy.* This may likewise occur in the extraction of cataract with or without iridectomy. When we consider that extraction is performed much more frequently than iridectomy, but that hemorrhages are more often met with after iridectomy for glaucoma, we are forced to conclude that

there must be some relation between them and the glaucomatous process."

He has found the prognosis of iridectomy for glaucoma following retinal hemorrhage by no means so unfavorable as is usually stated. He cites a case to illustrate this.

"We must not forget that the unfortunate accidents described above are very rare exceptions, which dare not be considered as contradicting the iridectomy. In a large majority of cases we may expect permanent cure after glaucoma from the iridectomy, and if useful vision was present to preserve it. This statement, however applies only to cases of true glaucoma. In most cases in which the result of the iridectomy is unsatisfactory, it is the so-called simple glaucoma, a disease which very frequently is not glaucoma at all, but an affection of the optic nerve with pre-existing physiological excavation. It is exceptional to find cases of true glaucoma in which after iridectomy glaucomatous attacks occur and lead to blindness. When gradual loss of sight occurs after an iridectomy for glaucoma without distinct glaucomatous attacks, it is proper to assume that an affection of the nerve has developed after the removal of the glaucomatous process, and this naturally may occur in eyes with iridectomy as well as in others."

"Attempts have long been made to replace the iridectomy for glaucoma by some other method. Sclerotomy was first suggested upon the assumption that the important part of the operation lay in the incision at the sclero-corneal margin and not in the excision of the iris. . . . . Judging from my experience, sclerotomy is an absolutely unreliable operative measure for glaucoma and does not prevent recurrent attacks."

"The latest attempts to replace the iridectomy are with eserin or pilocarpin. Slight attacks of glaucoma can be cured with eserin and pilocarpin, a fact as well known as that severe attacks withstand these remedies. To speak of the case in which the attack of glaucoma was removed by eserin as cured, is as correct as to speak of the spontaneous cure of glaucoma because slight attacks frequently disappear of their own accord. Glaucoma can be said to be cured only when the attacks are entirely prevented, and the *only*

method by which this is accomplished is iridectomy. It is really very improper to try a palliative measure for years, only to avoid using a proved remedy. That eserin may be used for many years with constantly recurring attacks cannot be doubted. In one of my cases nine years passed without the use of any palliative measure before a severe attack occurred in which eserin was without any action, and an iridectomy had to be performed. At any rate, the patient who is treated with eserin must constantly remain under observation, and at the first appearance of a severe attack the operation must be performed. For it may happen that after several slight attacks a very severe one may occur with immediate danger of blindness. It is more frequent, however, to find that recurrent slight attacks finally lead to blindness, perhaps without the patient being conscious of it. In these cases of very gradual visual impairment central vision remains good for a very long time, the field of vision becoming more and more restricted. I have seen cases in which there was fair central vision with a minimal field after the continued use of eserin for years." . . . . *And when glaucoma has been positively demonstrated, then iridectomy is indicate*d, and there is no sense in first losing time in using eserin and finally to perform iridectomy, when, as Cohn very properly states, the prognosis is much less favorable."

Recurrent Paralysis of Ocular Nerves.

By Messrs. Ormerod and Spicer. Report of the March, '96, meeting of the Ophthalmological Society of the United Kingdom, (*Medical Press*, March 25, '96.)

Seven cases were narrated, three of which were of the third nerve. The patients had suffered from a periodically recurring one-sided headache attended by vomiting and a sense of illness, the attacks varying very much in intensity; the slighter ones had passed off after a few hours, the more serious ones had lasted several days, and were accompanied by sudden and more or less complete paralysis of the corresponding third nerve. In the earlier attacks the paralysis was recovered from, but after several recurrences some of the parts of the third nerve became permanently paralyzed. In one of the cases there was partial paralysis

of the optic nerve on the side of the paralyzed third nerve. The fourth case had recurrent paralysis of both third nerves occurring after a long course of periodic headaches, in which the ultimate condition was one of complete ophthalmoplegia externa of both eyes. The remaining cases were examples of paralysis of the sixth nerve which had recurred, in one of which the seventh nerve was involved later on, and in the other the third nerve was largely involved. The opinion was expressed that the term migraine which was commonly applied to these cases was an unfortunate one; there was no history of any of the other migraine phenomena in any of the published cases, such as hemianopsia, or scotomata, or visual spectra; moreover, the motor character of the affection and the persistence of impairment of movement depended upon a definite local lesion of the base of the brain, an opinion which was supported by the results of post-mortem examination.

Color Measurment and its Application in Medicine and the Arts.

By Casey A. Wood M. D., Chicago. (Medicine, March, 1896.

Dr. Wood draws attention to the fact that not only in America but in England and the Continental countries, arbitrary names continue to be given to color shades and mixtures without reference to their spectral or other value, and that this objectionable nomenclature continues to be employed in scientific works dealing with chromatics.

Captain Abney and Mr. J. W. Lovibond have both suggested a rational color measurement as part of an attempt to resolve all colors, shades and tints into terms of certain primary colors accepted as a standard. Lovibond's experiments have resuted in the perfection of an instrument called by him the "tintometer," by means of which any color combination can be read off in terms of *blue*, *yellow* and *red*.

Captain Abney obtains his standard white by isolating a beam from the centre of an electric light. The beam is directed into a two or three prism spectroscope, and the light reflected from the surface of the first prism—considered to be half of the impinging beam—is received on a mirror which reflects it for illuminating the color to be

matched. The other half as a prismatic spectrum illuminates a piece of standard white paper beside the colored surface. By an ingenious shutter arrangement the spectral colors are used for matching and then determining the color composition of the beam.

In the Lovibond instrument the depth of color in liquids and solids can be accurately measured in degrees, placed in their position in a permanent color scale, and registered. The instrument consists of a graded series of standards, made of colored glasses, numbered according to their depth of color, and an instrument for holding the glasses and the object to be measured. Only three color scales are necessary for investigation work; these are red, yellow and blue; but for some special purposes, such as for brewers, for the estimation of carbon in steel, for urinalysis, examination of blood, etc., scales in other colors are found convenient. Each ordinary scale consists of glass slips all of one color but differing in depth, the divisions of difference being regular, forming degrees or units as in the case of temperature degrees on a thermometer scale, or inches on a foot rule.

It has been found that the amount and kind of adulteration in most foods and commercial products, as well as the impurities commonly found in drinking water and other fluids, can be determined by the deviation measured by the tintometer, from the normal tint of the pure article. Instead of making a laborious and complicated chemical examination of the suspected compound, its color value is determined in a few minutes. Such a chromometric examination is usually found to answer all the purposes of a quantitative analysis in urinalysis, hemometry, etc. In this way the tintometer is now employed in England, and to some extent elsewhere, by all sorts of commercial houses, and it is also used with great success by the health departments of cities for the ready detection of impurities and adulterations in milk, water, beer and other foods. The slightest departure from purity, whether in food or any other product is at once shown by a measurable and corresponding variation of color.

The Use of Formaline in Ophthalmic Practice.

By Swan M. Burnett, M. D., Ph. D., Washington, D. C. *Ophthalmic Record*, March, 1896.

"Formaline is a 40 % watery solution of formaldehyde. Formal the German preparation is of approximately the same strength. Formaldehyde itself is a strong escharotic and one of the most powerful germicides and antiseptics known. Animal tissues suspended in its fumes are preserved from putrefaction. As a tissue preserver formaline has no superior, and will no doubt supplant alcohol for that purpose, since it is much cheaper, and has many other advantages as a preserving agent. In the first place it does not act by extracting the watery constituents from the tissues, and there is therefore, no shrinkage and consequently no distortion of the elements from their normal relations. The tissues also retain much of their original color and transparency. Even the crystalline lens does not become completely opaque under its influence for quite a long while. In the preparation of tissue for section for microscopic examination, therefore, it is vastly superior to alcohol or Müller's fluid or any other agent that has been yet employed for that purpose, and it has the futher advantage of being very rapid in its action. An eye will become sufficiently hard for cutting in three or four days in a 5% or 10% solution, which is the strength usually employed as a hardening agent.

The ophthalmological world first became aware generally of the value of this quality of formaline through Prof. Leber of Heidelberg, at the Ophthalmological Congress in Edinburgh in 1894. The credit of its first use however, I believe, belongs to Herman. These qualities of the chemical are already recognized by many but are not, I think, as widely known as its merits demand, and for this reason I here call attention to them again.

My special purpose in this short paper is to set forth its therapeutic value in ophthalmic medicine and surgery. A germicide of its great power is an important addition to our list of medical agents. . . . . It has little if any toxic properties. Up to this time no case has been reported of any deleterious effect from its use."

The writer points out its valuable property of rapidly diffusing itself through both dead and living tissue being, therefore, more useful than other germicides in infections in which the microbes penetrate below the surface and into the substance of tissues.

Most excellent results have been obtained from its use in infecting ulcers of the cornea and purulent conjunctivitis. My own experience with the remedy in both forms of disease has been very encouraging. The corneal ulcer can be touched with solution of 1 to 200 or 1 to 500 once every day, and for general use as an antiseptic a collyrium of 1 to 1000 or 1 to 2000. I have a few times cauterized the ulcer with 1 to 100. One case of serpiginous ulcer I treated with formaline alone, and it turned out more satisfactorily than I have seen such cases by the old methods. In mucopurulent and purulent conjunctivitis my experience with it has been most satisfactory. I have not yet relied upon it alone in the severe forms of conjunctivitis but in the milder forms I have, and have had no reason to regret it. But even in the severe cases I use it as a general antiseptic in addition to the silver nitrate. In acute catarrh of the conjunctiva (pink eye) it has acted most promptly when used as a collyrium of the strength of 1 to 1000 or 1 to 2000 applied every four hours. I have also tried it in those cases of chronic conjunctival congestion with diminished secretion which are often so rebellious to treatment, and in most instances with good results.

For ulceration of the edges of the lids, so far as I have had any opportunities of using it, the remedy has seemed to act well. The dosage in such cases is to be regulated by the desired effect, from 1 to 100 as a mild caustic, to 1 to 2000 as a stimulant.

For the disinfection of instruments and keeping them aseptic, it has the great advantage of not dulling the edges of knives. It can also be used for washing the conjunctiva previous to operation on the eye, though its disadvantage for this purpose is the slight burning sensation it causes sometimes even in solution of 1 to 1000. This, however, is trivial."

The Use of Extract of Suprarenal Capsule in the Eye, A Preliminary Report.

By W. H. Bates, M. D., New York. (*N. Y. Medical Journal*, May 16' 1896.

"The aqueous extract of the powder of the dessicated suprarenal capsule of the sheep is a powerful astringent

and hemostatic. When it is instilled into the eye the conjunctiva of the globe and lids is whitened in a few minutes. The effect is very decided. None of the usual astringents, including cocaine, can produce such an astringent effect. In normal eyes the extract whitens the conjunctiva and sclera when used in very weak lotion—less than 1 per cent. The effect is increased by repeated instillations or by the use of stronger solutions. In eyes very much congested from inflammation, the extract produces its astringent effect. No case has been found in which the extract did not act. . . . . The extract is not irritating. . . . . It does not dilate or contract the pupil, and it has no effect on accommodation. . . . . The astringent effects on the conjunctival vessels is temporary—usually in an hour the eye looks as before the extract was used. There was no congestion after the astringent effect had passed off. The extract when swallowed increases the frequency of the pulse. Considerable doses may be taken without harm."

The writer then describes the preparation and chemical properties of the extract. It does not act well when combined with other substances; when used in solution with cocaine, the eye was irritated and not anaesthetized. Boiling produces a precipitate; the filtered fluid can be boiled a number of times and still retain the properties of the extract.

"My observations on the use of the extract in the eye were made during the past two years. . . . . I have had no disagreeable effects from it, and my confidence in it increases constantly." The extract was beneficial in a case of acute catarrhal conjunctivitis and in a number of phlyctenular cases, in a number of cases of interstitial keratitis (other treatment also being used), in iritis and in acute dacryocystitis. In these cases it is beneficial by lessening the congestion.

"The extract was valuable in operations on the eye in the following cases: (1) Nervous people—An operation on some nervous people is unsatisfactory, because cocaine does not produce anaesthesia. Such cases are quite common." The writer cites the case of a woman whose conjunctiva was not affected by instillations of cocaine; a few

drops of the extract whitened the ocular conjunctiva and then the cocaine produced anaesthesia; there was very little hemorrhage and little soreness after the operation while after a previous operation there had been considerable hemorrhage and soreness for two days. (2) Inflamed eyes. "It is difficult to produce cocaine anaesthesia in eyes which are congested, the reason being that either the cocaine is not absorbed or because the irritation of the nerves resist the cocaine. The suprarenal extract by astringing the vessels relieves the congestion, and complete anaesthesia with cocaine can then be obtained. (3) Eyes congested after recent operations. (4) Prolonged operations. "An operation which requires more than a few minutes becomes painful in some cases, although cocaine may be instilled frequently. Advancememt of an ocular muscle is generally so painful that many operators are compelled to use ether anaesthesia. The operation may begin painlessly, Later the anaesthesia wears off particularly if there is hemorrhage. The extract when frequently instilled, prevents hemorrhage, and the cocaine anaesthesia is prolonged indefinitely for this reason." (5) Bloody operations." The extract prevents hemorrhage because of its property of contracting the small arteries. After hemorrhage begins the extract is not efficient. It is possible to perform an almost bloodless operation on the ocular muscles or lacrymal sac by instillating the extract frequently."

"The extract is not an objectionable haemostatic. It does not form clots like iron or irritate as does peroxide of hydrogen. It is better to use the sterilized solution, as infection has occurred from the freshly prepared aqueous extract of the gland and of the desiccated powder."

On the Nature and Treatment of Exophthalmic Goitre, With Special Reference to the Thyroid Theory of the Disease and to the Treatment by Thyroidectomy.

By M. Allen Starr, M. D., Ph. D., New York. (*Medical News*, April 18, 1896.

Dr. Starr reviews the numerous theories which have been offered to account for the disease and which have been discarded because each failed to account for all the symptoms.

"It is only within the past few years since the more accurate knowledge of disease of the thyroid gland has been reached by physiological experimentation, by clinical observation in cases of myxedema, of cretinism, and of the various forms of goitre, and by pathological investigations, that a clew has been reached to the problem of the origin of Graves' disease. The theory which I wish to urge that exophthalmic goitre is due to hyperactivity of the thyroid gland is by no means an orginal one. . . . . I have become converted to this theory by my own experience in the study both of exophthalmic goitre and of myxedema, and I am sure that anyone who has had occasion to observe these two diseases, to notice the striking contrast between them, or to watch the effect of the administration of thyroid extract in myxedema, in cretinism, or in the reduction of obesity, must have been impressed very strongly with the fact that the symptoms of exophthalmic goitre are due to an excess of thyroid secretion in the blood. This theory will seem more probable if we contrast the symtpoms present in myxedema with those present in exophthalmic goitre, and if we study the symptoms which are produced in patients suffering from myxedema by the administration in excess of thyroid extract. The essential symptoms of exophthalmic goitre are the swelling of the thyroid gland, the protrusion of the eyeballs, retraction of the lids and inability to converge the eyes to a near point; the rapid action of the heart and throbbing of the arteries; the burning and perspiration of the skin; the intense nervous excitement with tremor, sleeplessness, and mental irritation; occasional diarrhœa, of a watery character; irregularity and rapidity of respiration with sense of dyspnea, especially on any exertion, and sudden exhaustion, with occasional giving way of the limbs."

Dr. Starr then contrasts the symptoms of myxedema and of exophthalmic goitre. Regarding the appearance of the eyes, he says: In myxedema there is a marked tendency to abnormal heaviness of the eyelids, so that the upper lid falls and the eyes are widely opened. This falling of the lid appears to be independent of its thickening by the myxedema. There is also a retraction of the eyeball. I have noticed in all my cases after a cure of the myxedema that

the eyeball had been previously decidedly retracted, so that when the patient was cured, and the eyeball was in its natural position the previous retraction, as shown by photographs, became noticeable. The narrowing of the palpebral fissure, by the semi-closure of the eyes adds to the dull, lifeless expression of the face in myxedema and gives the patient the sleepy look."

"In exophthalmic goitre the eyes are abnormally widely open. And even in the cases in which the exophthalmos is not sufficient to interfere with the movement of the upper lid there is a tendency to retraction of this lid so that it does not descend in a normal manner where the patient is told to look downward (Graefe's symptom). The lower lid is also slightly retracted in exophthalmic goitre (Stellwag's symptom), this is more noticeable when the eyes are prominent, but even when they are not it is quite common for the sclera to be visible all around the iris in this disease. The prominence of the eyeballs is the cause of the three chief symptoms, and is, at times very painful, and leading occasionally to ulceration of the cornea."

The writer mentions the fact that, among other symptoms exophthalmos is an indication that too much thyroid extract is being given to a patient suffering from myxedema. Regarding pathology he accepts the views advanced by Byron Bramwell and Greenfield: "A true hypertrophy of the glandular elements of the gland with increase of its secretions, and possibly some change in the character of that secretion."

Regarding treatment he says: "If the theory of exophthalmic goitre here stated is the correct one, it is necessary for us to bring into accord with it some of the successful results of the various forms of treatment which have been recommended for this disease. It is well known that a very large proportion of patients who suffer from exophthalmic goitre, recover either entirely or for a considerable length of time. Such recovery is of course inconsistent with the idea of a permanent destructive lesion of any part of the body and is only possible in a functional disturbance. If the cause of the disease is hypersecretion of thyroid gland, a reduction of that secretion to its normal amount would result in a cure, hence there is nothing in

the theory advanced that is against this successful result.

But when the enormous number of remedies which have been brought forward, are reviewed it is not easy to understand in what way the result in any individual case has been accomplished."

The writer reviews the various methods of treatment which have been proposed—belladonna, rest cure, electricity, aconitia and veratrum viride, glycero-phosphate of sodium. During the last few months attempts have been made to treat patients suffering from this disease with thyroid extract; but such treatment has not only been of no service but is injurious, all the symptoms becoming markedly increased.

Dr. Starr's consideration of the question of operative treatment is based upon 98 cases collected by Bushau and 92 collected by himself, making 190 cases in all. "Of this number 23 cases died immediately after the operation, 74 cases are reported as entirely cured 45 cases are reported as improved and 3 cases are reported as not improved; in regard to the remainder no final results are reported."

"I think it may be said in conclusion that in the severe and intractable cases of exophthalmic goitre in which rest-cure and medicinal treatment have failed to relieve, the operation of extirpation of the thyroid gland must be considered as justifiable, and should be advocated by physicians. It should not be undertaken by surgeons hastily, or without some experience. The surgeons who have been most successful in the past few years are those who have had the largest experience in the extirpation of goitre."

On Orbital Fistulae Due to Ethmoidal Disease and Their Treatment.

By E. Gruening, M. D., New York. (*New York Eye and Ear Infirmary Reports*, Jan. 1896.)

"Near the inner edge of the orbit at a little distance above the inner canthal ligament we find at times a fistulous track which leads into the ethmoidal cavities. The mouth of the fistula may be situated at the inner end of the tarso-orbital fold or lie hidden in the fold and be invisible when the eye is open. The patient is annoyed now and

then by the appearance of pus on the outside of the upper lid. From the history of the case we learn that the site of the fistula had been occupied by an abscess which either had opened spontaneously or had been incised. We see then that this particular orbital fistula is a sequela of ethmoidal abscess and since we know that purulent ethmoiditis often results from simple closure of the ostium ethmoidale and is amenable to treatment, especially when the nasal communication can be re-established, there is no reason why orbital fistulae having the same etiology should not be treated in the same way, *i. e.*, by piercing the floor of the ethmoidal cavity and thus affecting an entrance into the nose. In two cases that came under my observation in the past year I adopted this plan of treatment and succeeded in closing the fistulae." In both cases a silver probe was passed through the opening and downward until resistance was encountered; then by firm pressure an opening was made into the nose.

The Indications for Operating in Insufficiency of the Ocular Muscles.

By Francis Valk, M. D., New York. (*Ophthalmic Record*, May, 1896.)

It has always occurred to the writer "that it was difficult to decide when it is best to operate on the ocular muscles for insufficiency, and what would be the best operation to perform." He speaks only of the straight muscles of the eye and does not concern himself with the oblique muscles since he does not believe "that these muscles have any action or influence in turning the eyeball on its center of rotation, but that the functions of these oblique muscles are simply and solely to keep the vertical plane of each eye parallel to that of its fellow eye."

After discussing the indications for an operation upon the straight muscles, and the tests used to demonstrate insufficiency he takes up the method of operative procedure which he has found most useful. "I must acknowledge that I am not at all familiar with the operation called graduated tenotomies as suggested by Stevens, but as I understand the term, it seems to me, that by graduated tenotomies we must operate too often" . . . . . "I pre-

fer to make my operations at once as extensive as I think the case will permit; thus I have found out that I can divide my operations into three distinct methods:

"*First.*—Partial tenotomy, in which with a small opening in the conjunctiva, and with a small hook, I expose the tendon of the muscle to be operated upon, then with a small pair of scissors I cut the tendon close to its attachments to the eyeball, being very careful to leave uncut a very small central portion the size of a large thread. The conjunctiva is then smoothed over the wound without a suture; I then simply apply a cold water dressing, and at no time cover the eye with a bandage as I prefer the eye to be used."

"*Secondly.*—If we desire that a partial tenotomy will no give us sufficient effect, that is in a case of decided insufficiency, then by means of the second method and with the same preliminaries as before, I do a complete tenotomy, severing all the fibres of the tendon, and continue as in the first."

"I now come to my third method, an operation which is original to myself. Although after I had used this method a number of times I was informed that Savage, of Nashville, Tenn., had adopted a similar method for shortening the muscles of the eye, but I believe that I have improved upon Savage's method. In this operation when the muscle is innervated by the stimulation of the guiding sensation, the object is to shorten the muscle and have increased power in order to turn the eye. Having decided upon the muscle to be shortened, I make a horizontal incision in the conjunctiva over the muscle; and I then fully expose the tendon and muscular fibres by passing two strabismus needles beneath and separating them as far as needed. Now take a small curved needle armed with No. 00 catgut suture, I pass it beneath the tendon close to its insertion to the sclera and bring it out above. The needle is again inserted from within outward as far back as I decide to form my *tuck* in the muscle. We now carry the suture across the belly of the muscle and at a point opposite the previous insertion; I pass the needle from without inward, coming out below. Going back now to the tendon, again very close to the sclera, the needle is passed under

the tendon, brought outward opposite the first insertion and the needle is cut off. We now have the suture in a position ready to tie. Making a surgeon's knot in the suture we slowly and cautiously tighten it, so as not to break it, and we will at once see the small knuckle formed in the muscle. We then tighten this according to the effect desired, fasten it with another knot, cut the suture off; smoothing the conjunctiva of the wound completes the operation. I leave the suture in the eye allowing it to be absorbed as the tissues unite. The small knuckle, so prominent at first, will slowly disappear and no trace of the operation will remain."

Suture After Cataract Extraction.

By Charles H. Williams, M. D., Boston. (*Boston Med. & Surg. Journal*, Apr. 16, 1896.)

"About 30 years ago my father first used a suture in the cornea after cataract extraction (Royal Lond. Oph. Hosp. Reports, 1867.) His usual operation was either a flap or the upward corneal cut of Lebrun, and a single silk suture was placed at the apex of the wound in the corneal tissue; but during the later years of his life he abandoned its use. In the following series of eleven cases sutures were used; but instead of being placed in the cornea, I have put them in the small flap of conjunctiva which is left adherent to the cornea at the apex of the wound, for after trying the corneal suture I gave it up in favor of the conjunctival location. Years ago Prof. Horner, of Zurich called my attention to the fact that when a conjunctival flap was attached to the cornea, you had a better healing, provided the flap remained in its proper place, for the conjunctival tissue heals more rapidly than the cornea and helps to keep all parts in position while the cornea is uniting; on the other hand, this unfastened conjunctival flap often becomes rolled in upon itself and gets entangled in the wound, and in such cases the epithelial surface of the conjunctiva interferes with the healing; he therefore advised avoiding a conjunctival flap.

In the following cases I have made the wound include about one-third of the corneal circumference, with the puncture and counter-puncture in its clear tissue, and by inclining the edge of the knife slightly backward and cut-

ting out with a very gentle pressure the knife will have a small band of conjunctiva stretched across it when the apex of the cut is reached, the knife coming out at about a point corresponding to the junction of the cornea and sclera on their inner surface, then inclining the knife still further backward this conjunctival band can be so divided as to give a small flap attached to the upper part of the cornea, from one-ninteenth to one-eighth of an inch in length and of varying breadth. After the extraction of the lens has been completed, the flat and ocular conjunctiva are brought together with from 1 to 3 sutures of fine sterilized black silk, which are made by untwisting the finest sewing silk and using one of its three strands. The wound is then held in good position; hernia of the iris is not likely to occur; and in cases where there has been loss of vitreous during the operation a further loss is prevented and healing promoted. Either the corneal needle used by my father or a fine curved needle can be used. The suture genarally comes away spontaneously about the seventh to the tenth day, or it can be removed under cocaine with forceps and scissors; it is well tolerated by the conjunctiva, and does not seem to cause pain or irritation of the parts."

The writer gives brief histories of eleven cases operated upon by this method. There was one case of hernia of the iris. In 5 cases vision = 0,3; in 4 cases vision = 0.1; in one case vision = 0.2; in one case vision = 0.6.

The Significance of Constrictions and Dilatations in the Calibre of Retinal Arteries.

By Harry Friedenwald, A. B., M. D., Baltimore. (*Archives of Ophthalmology*, April, 1896.

The writer describes thirty-three cases in which he has found constrictions and dilatations in the calibre of the retinal arteries. He points out the clearness with which the circulation can be observed in the eye: "The vessels of the retina can be distinctly seen with the ophthalmoscope through the transparent media of the eyeball; the latter not only offer no impediment to our gaze but even aid our sight by acting as magnifying lenses enlarging the object many times. The walls of the retinal vessels are perfectly transparent, having the same refractive index as the re-

tina and are therefore invisible. What we see is not the vessel but the column of blood contained in it. Its size is the index of the calibre of the blood-vessel. The normal retinal blood-vessels vary considerably in size, but it is not difficult in most cases to draw the line between the normal on the one hand and the abnormally narrow on the other. The healthy retinal blood-vessel has its greatest calibre at the papilla and gradually and almost imperceptibly becomes narrower toward the periphery, excepting at those points where divisons take place. Here each of the branches has a diameter smaller than that of the main trunk. The course of the arteries is in more or less straight lines and in infrequent curves."

In the 33 cases described, he found "peculiar variations in the calibre of the arteries which have the appearance of constrictions. Thus an artery may start at the papilla with a narrow calibre, become wider for a short distance, then narrower again and so on into the periphery. The constrictions may be slight, or they may be so great as to cause the vessels to disappear entirely; and the intervening spaces may by contrast appear as aneurismal dilatations."

He refers to his report of the results of the ophthalmoscopic examination of 40 retinae in cases of arterial sclerosis (Journ. of the Am. Med. Assoc. May 2, 1891.) In these examinations he found besides local or general narrowing of the arteries with frequent tortuosity, a few instances of whitish margins along the arteries, and in several cases, "senile changes in the characteristic little yellowish spots due to colloid degeneration of the lamina vitrea of the choroid."

"The pathological change producing the local and general narrowing of the arteries is a hyaline thickening of the vessel-wall."

In the paper under consideration he found constrictions and dilatations of the retinal vessels in 26 patients in whom a greater or lesser degree of general arterio-sclerosis was present. In most cases these were elderly individuals and the affection of the vessels was often associated with other senile changes, such as beginning cataract, central retinal atrophy, and especially colloid excrescences. The degree of variations in calibre of the retinal arteries did not bear

a definite relation to the general signs of arterio-sclerosis in other parts of the body.

In five of the cases in which constrictions and dilatations of the retinal arteries were found chronic Bright's disease existed and all suffered with fairly marked arterio-sclerosis. "It is proper at this point to mention that numerous cases of Bright's disease were examined in which no variations of calibre in the retinal arteries could be discovered."

"In view of the long-assumed and more recently demonstrated relations between glaucoma and general and local arterio-sclerosis." . . . . . "two cases of glaucoma, one subacute, the other simple, showing no tendency to hemorrhages, both of which presented the pathological appearance of the retinal arteries which are being described, to a marked degree," are interesting.

In this connection he also mentions one case of diabetes and arterio-sclerosis, one case of hemorrhages of the retina, and a few cases of atrophy.

"The conclusions which may be drawn from the cases described in this paper are that the vascular alterations manifesting themselves as constrictions and dilatations of the calibre of the retinal arteries are not of infrequent occurrence, and that they are important as indications of local as well as general vascular disease."

Amaurotic Family Idiocy.

By B. Sachs, M. D., New York. (*New York Medical Journal*, May 30, 1896.)

Dr. Sachs proposes this designation for an affection, the chief symptoms of which are:

1. Mental impairment, observed during the first few months of life, and leading to absolute idiocy.
2. A paresis or paralysis of the greater part of the body, and this paralysis may be either flaccid or spastic.
3. The reflexes may be deficient or increased.
4. A diminution of vision, terminating in absolute blindness (changes in the macula lutea, and later an optic nerve atrophy.)
5. Marasmus and a fatal termination, as a rule, about the age of 2 years.

6. The occurrence of the affection in several members of the same family.

Up to the present time but 19 cases of this disease have been reported. "The ocular manifestations of the disease have been well described by a number of ophthalmologists. . . . . In 1881, Warren Tay described (in the Transactions of the Ophthalmological Society of the United Kingdom. vol. I) a case presenting "symmetrical changes in the region of the yellow spot in each eye of an infant." Briefly the case was this: An infant. aged 12 months. Child was deficient in holding up its head or in moving its limbs. There was weakness, but no absolute paralysis of any part. Its cerebral development was probably deficient. At the first examination Mar. 7, 1881, the optic discs were apparently healthy, but in the region of the yellow spot of each eye there was a "conspicuous, tolerably diffuse, large white spot, more or less circular in outline, and showing at its center a brownish-red, fairly circular spot, contrasting strongly with the white patch surrounding it. This central spot did not look at all like a hemorrhage, nor as if due to pigment, but seemed a gap in the white patch through which one saw healthy structures. In fact, the appearance may most suitably be compared with those we are familiar with in cases of embolism of the central artery of the retina. The author adds that he can not arrive at any conclusion as to the exact nature of the disease. He believed the changes to be situated in the retina and possibly congenital. Five months later another examination was made, showing that the discs had become atrophic, but that the changes in the macula lutea were the same as before."

The Eye Symptoms of Intracranial Tumors.

WILLIAM F. NORRIS, M. D., Philadelphia, Pa. (*University Medical Magazine, March, 1896.*

"It has been known in a vague way since the earliest periods from which any medical records have survived that the integrity of the visual functions was menaced by intracranial disease, and that blindness often resulted from it. * * * Since Von Graefe, in 1854, first called attention to the altered appearances of the intra-ocular ends of

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the optic nerves, which may be seen in most cases of inflammation of the basal meninges and of intracranial tumors, the study of these changes, their diagnostic significance, and mode of causation has been the subject of constant discussion and fruitful investigation at the hands of numerous clinicians and pathologists. It is, however, not alone to the nerve of sight that we must turn for information as to the eye symptoms of intracranial growths. The eye and its appendages being supplied by five other cranial nerves, three of which are devoted exclusively to these organs, we may expect pressure on, or degeneration of, any part of their trunks, or of their mid-brain or cortical centres to produce interference with their functions and noticeable symptoms of disturbance. Thus, double vision due to impaired action of the straight or oblique muscles, paresis of the pupillary or ciliary muscles, loss of power in the levator or in the orbicularis, are all of frequent occurrence, and aid us in diagnosticating and localizing an intracranial growth."

Concerning *papillitis*, the writer says: "Inflammatory changes are present in the intra-ocular ends of the optic nerves at some stage of the affection in about 90 per cent. of the cases of intracranial growth and of basilar meningitis. There is increased redness of the disk with serous effusion between the nerve-fibres and undue fulness and tortuosity of the retinal veins. The normal boundaries of the disk are at first veiled by the hazy retinal fibres, but soon entirely hidden by their increasing swelling and opacity. The disk becomes prominent and projects as a small irregularly rounded mass into the cavity of the eyeball. This prominence is usually highest at the nasal side where the nerve-fibre layer is normally at its thickest. The capillaries and veinlets on the surface of the swollen disk become so distended that they are readily visible by examination in the upright image, while the swollen hazy nerve-fibres often hide from view a considerable stretch of the veins and arteries soon after their emergence from the disk, which reappear once more further in the periphery of the retina, where the fibre-layer is normally thinner and still retains its transparency. After a varying period in which these appearances of vascular turgidity remain unchanged,

the lymph effused into the heart of the nerve becomes opaque and commences to contract, so that the smaller vessels are constricted and hidden from view. Later still, the swollen papilla begins to shrink, and, if the patient survives, after a period of some months slowly regains the retinal level, so changed and contracted, however, that the conducting power of the nerve-fibres is usually entirely abolished, the capillary vessels shrunken, and we have a whitish, opaque, and atrophic disk."

Dr. Norris calls attention to the fact that "in the early stages of the swelling of the disk there is often wonderfully little interference with the acuity of vision, and in a strong light we frequently find normal acuity in a papillitis which has become quite marked. In fact, it is only after the swelling has existed for some time, and has reached a high grade, that we have marked diminution in the visual acuity and increase in the size of the blind spot, with contraction of the color and form fields, symptoms which are the rule when from long continued pressure and from the contraction of the exudation the swollen disk commences to shrink. Owing to this circumstance, the early symptoms of intracranial growths and accompanying papillitis are at times overlooked." He mentions a case in which there was but slight diminution in visual acuity with good illumination but marked diminution in feeble light. "This undue diminution of central and peripherial acuity of vision with diminished light is a symptom either of interference with the function of the retinal epithelium, as in the early stages of pigmentary degeneration of the retina, or of interference with the conducting power of the nerve-fibres from swelling or from contraction, as in case of neuritis with consecutive atrophy."

Concerning the stage of intracranial disease at which papillitis occurs, the writer says: "While I believe that papillitis occurs in about 90 per cent. of the cases of intracranial growth at some stage of the disease, it is by no means always an early symptom, but often develops only when the case approaches its termination. Large intracranial growths may long be without it, while small ones may rapidly produce it."

The rest of the paper is devoted to a discussion of the

ordinary appearances of papillitis contrasted with the swelling produced by pressure on the optic nerves close to the optic foramen, the pathology of papillitis, symmetrical defects in the fields of vision and homonomous lateral hemianopia, Wernicke's symptom and symptoms due to pressure on the nerves at the base of the skull and to disease of the cortex.

Remarks on Certain Ocular Phenomena in Their Relation to Intracranial Growths.

By George E. de Schweinitz, M. D., Philadelphia, Pa (*University Medical Magazine*, March, 1896.)

The writer calls attention to the fact that "although neuritis may be long-continued, as Gowers pointed out, it is none the less a transient symptom, and it should not be forgotten, when searching for ophthalmoscopic evidence of intracranial disease, that the actual inflammation of the intra-ocular end of the optic nerve may have passed away, with the exception of remnants in the form of spots of degeneration in the retina, filling in of the center of the disk, or white tissue along the lines of the vessels."

Regarding the distribution of intracranial tumors with respect to the existence of the neuritis, he shows by referring to a paper of Edmunds & Lawford, that there is comparative immunity from optic neuritis of the cases of tumor in the cortical motor area, and that the frequency and severity of papillitis in cerebellar tumors is most marked. Optic neuritis has been found to occur in 50 per cent. of the cases of tumors situated towards the convexity of the brain and in 74 per cent. when situated towards the base.

The writer speaks of certain lesions in the macular region which occur with intracranial growths and which "sometimes are so pronounced that they are singularly like the picture ordinarily considered characteristic of the retinitis of Bright's disease. * * * Dr. James Taylor first called attention to these cases, and, moreover, to the fact that the macular figure was apt to occur when the neuritis was significant of a cerebellar tumor." He mentions an instance, recently seen, in which the "simulation of the retinitis of Bright's disease was so exact that eyeryone who examined the case with the ophthalmoscope at once took for granted that nephritis was present, although the kid-

neys were entirely normal." He quotes from what he had previously written on the subject: "Double papillitis is highly significant of intracranial disease, especially tumor or basillar meningitis, but it is not a pathognomonic sign. Other causes, prominently Bright's disease, gout, and certain poisons, which, indeed, may or may not be associated with the intracranial lesion, must be excluded. Conversely, brain tumor, usually cerebellar, may cause choked disk with the appearances usually considered characteristic of a type of albuminuric retinitis."

MASTOID ABSCESS COMPLICATED WITH LATERAL SINUS TROMBOSIS AND DIABETES—OPERATION—RECOVERY.*

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In the preparation of this paper it seems eminently proper that I should begin with a brief synopsis of the anatomy of the part involved viz: The mastoid portion of the temporal bone: This portion of the temporal bone is an irregular conical mass of osseous tissue located behind the external auditory meatus and projecting for a varying distance below its floor; its lowest extremity forming the apex of the cone, is covered by the aponeurosis of the Sterno-Cleido-Mastoid muscle. The mastoid portion may be pneumatic, diploic or sclerotic in structure. In the pneumatic mastoid there are numerous air spaces throughout the entire mass. In the diploic mastoid the antrum alone is present, the remaining portion consisting of diploic tissue; when the mastoid is sclerotic the entire process consists of a dense eburnated mass of osseous tissue.

There is not the slightest vestige of a pneumatic space excepting the antrum and even that may be small. The anterior wall of the mastoid forms the posterior wall of the external auditory canal and when the cells are well developed in this region the earliest symptoms of their being involved in an inflammatory process appear here: A marked redness and tenderness of the auditory canal posteriorly superiorly, and immediately external to the drum. No

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matter whether the mastoid be pneumatic, diploic or sclerotic one air space is always present, viz: The antrum. At birth it is the only space developed. This cavity is pyramidal in shape and communicates with the middle ear by a narrow passage, and for this reason I cannot conceive of an acute otitis in which the antrum is not involved more or less. We sometimes find at the tip of the mastoid a second cell of considerable size, and in all cases of mastoid trouble we should break away the external plate of bone down to the tip, for we sometimes find pus there. Owing to the invariable presence of the antrum and its importance in mastoid inflammation, its proper location and the manner of locating it are of great importance and should not be forgotten. If two lines be drawn, one horizontal, tangent to the superior wall of the external auditory meatus, the second vertical and tangent to the posterior wall, the point of their intersection will be the apex of a triangle the base of which will be formed by that portion of the curvilinear outline of the meatus included between the points of tangency of these lines. This triangle lies immediately over the antrum and an opening here will enter the cavity, *provided*, the Lateral Sinus is in its proper location. The inner surface of the mastoid shows a deep groove and this is what causes surgeons anxiety in mastoid operations because it contains that bugbear to all mastoid operations, the lateral sinus. This groove for the sinus sometimes lies immediately over the antrum and in this case the operator will most certainly enter it, but he must take his chances and hope for the best. In case of opening it should be packed with gauze and the operation continued as though nothing had happened. There are few exceptions when it does not lie behind the antrum far enough to be avoided by keeping the proper direction. In twenty operations I have never yet entered the sinus accidentally. The involvement of this sinus is one of the complications of mastoid inflammation and I am led to believe more frequently than we suppose, because it has not been diagnosed. Cases in which there was sinus involvement have been known to recover. It is a very easy matter for a septic clot to form in the lateral sinus by infection from the diseased mastoid nearby. I have just said that the diag-

nosis of sinus thrombosis has not been made so frequently as it should have been. In regard to this one of our most eminent brain surgeons Dr. W. W. Keen says on this point, "One of the most brilliant chapters relating to the cerebral complications of ear disease is the modern treatment of thrombosis of the lateral sinus. It is only since 1884 that this condition has been diagnosticated during life and treated with success. The frequency and danger of the disorder can be appreciated from the statement of Mr. Ballance. He estimates that in the city of London alone there is from this cause one death a week: Pitt says that in twenty years at Guy's Hospital in 57 autopsies of those dying from ear disease 22 showed thrombosis of the lateral sinus." The total number of cases of thrombosis of the lateral sinus so far reported in medical literature according to Dr. Keen is 86 with 58 recoveries and 28 deaths. Dr. Keen says that his own case, Bucks and Crocketts are, so far as he knows, the only ones reported in American literature. This statement means to 1895 in which year he wrote his article. Unless there have been cases reported that have not come to my notice, I must claim the honor of reporting the fourth case in America. This statement will no doubt be promptly contradicted if not true so we shall at least bring the other cases to our notice. I believe I deserve especial credit in the case, because of the fact that the patient was quite along in years, diabetic and in a poor physical condition after a month of suffering. Some eminent german otologist has said in the Journal of Laryngology, Rhinology and Otology (the number of which I have lost) that these cases usually proved fatal even when the mastoid only was involved.

I shall now give the history of the case as fully as I can:

On Nov. 3, 1895 at 4 o'clock p. m., I was summond to see Mrs. S, age 62 years, a robust looking woman but showing the signs of acute and severe pain endured during the past twenty four hours. She gave the following history: The day before both ears felt stuffy, and began to ache severely; She got no rest during the night or day and on the morning of Nov. 3d the right ear broke and the pain became much less severe but did not entirely subside. Hearing: watch was heard on contact on both sides, the voice at three feet. Upon inspection I found that the right membrane had rup-

tured just below and behind the handle of the malleus. There was a slight muco-sanguineous discharge oozing through the opening. The examination of the left ear revealed a bulging drum intensely red, tender and painful. I at once made up my mind that the redness was not due to an inflammation of the drum itself but that the drum was thinned by pressure due to an accumulation of blood in the tympanic cavity: I at once suggested the only rational procedure viz: paracentesis of the drum which was promptly permitted by the lady because of her intense agony. I made the opening in the posterior inferior quadrant when there escaped quite a quanity of blood. I prescribed hydrogen peroxide, hot boracic acid solution and dry heat to be applied to the ear, gave some morphia to allay irritability and to act as a sedative, and on the following morning, a dose of magnesia sulphate; I told her to go to bed and keep as quiet as possible and she would no doubt be better next day. On Nov. 4th, I again saw her but she was but little if any better. She did not rest well during the night, both ears were discharging mucus and blood. The case continued about the same until Nov. 12th, when the discharge became pus. The hearing improved under Politzerization, and the pain had ceased, but still she slept little excepting under opiates: She presented a very anxious and worried appearance and was growing emaciated: All these things convinced me that I had more than a simple case of otitis media purulenta to deal with. Having had a few years previously a case of hemorrhagic inflammation of the middle ear in a diabetic, I at once suspected this case and upon inquiring found that she had a diabetic history, having always consumed large quantities of water. I obtained a specimen of urine and found it acid in reaction, specific gravity 1037, containing no albumen, but with Haines's test, a large quantity of sugar. Fearing a fatal ending of the case, I at once asked for consultation and Dr. Munn was called in. He also examined the urine and found the same condition I had but he went farther and estimated the amount which he found to be 7%. We informed the family of the gravity of the case and I told them that it was not necessary to incur the expense of the attendance of us both, and since she had diabetes, her treatment was mainly dietetic, which Dr. Munn would prescribe for her, and that as she got better of her diabetes her ears would improve. Dr. Munn placed her on the proper diet, and also prescribed Codeine to be given during the day and morphia at bed time: She was taking, he tells me, as much as eight grains of Codeine and $\frac{1}{4}$ of a grain of morphia daily. The case with some

discharge from the left ear, that from the right having ceased entirely.

Dec. 5th, Dr. Munn was hastily called; patient had had a hard chill, temperature 104; pulse 90: On the next day temperature was again normal and pulse 80.

Dec. 7th, another severe chill, temperature 106; pulse 90. After the rise in temperature it would fall quickly to normal but not below it. During this time she was having severe sweats.

Dec. 13th, I again saw the case at Dr. Munn's request and found marked tenderness over the mastoid, extending over the whole bone and down the neck with marked induration along the anterior border of the Sterno-cleido-mastoid muscle.

On Dec. 16th, we saw the case together and found all the symptoms aggravated so we decided that there was only one thing to do in order to save the woman's life, and that was to open the mastoid and lateral sinus: We were convinced that we had more than a simple mastoid abscess to deal with and our reasons were these: The great induration along the neck, the violent oscillations of temperature going as high as 106 and then falling to normal in the course of a few hours, the sweats and the fact that the patient was septic: all these led us to think we had a case of lateral sinus clot. We told the family our decision and impressed on their minds the fact that an operation was the only chance for her and even that might not prove successful; with little hesitation they concluded to have it performed. On Dec. 17th, assisted by Drs. Munn and Mulvane, the patient was etherized and the mastoid and sinus opened: After incising the soft parts, which were very thick on account of the extensive induration, I found the bone very soft and easily perforated it with a Bucks' drill, when a large quantity of thick pus escaped; I then enlarged the opening in all directions with a rongeur forceps, going well down to the tip of the mastoid and backward into the groove for the lateral sinus. Upon incising the sinus there was no hemorrhage but with the finger we could feel a hard velvety mass in the sigmoid flexure; With a curette this was removed and proved to be clotted blood; after its removal a free hemorrage ensued, which was easily controlled by the finger. I curetted the sinus freely both upward and downward. We decided before the operation that we would not tie the internal jugular vein in the neck, although all authorities agree that it should be done to prevent extension downward into the lungs causing septic pneumonia: Our reasons for this seeming surgical negligence were the grave histories of these cases, the

age of the patient, the large amount of sugar, and the greatly debilitated physical condition after her month's suffering: Taking into consideration these facts, we felt that it would not be justifiable to perform so large a surgical operation; besides after entering the sinus we found that the clot had not extended beyond the sigmoid flexure. After thoroughly curetting away all necrotic tissue I washed out the cavity with peroxide and boiled water and packed with iodoform gauze. From this time on the lady made an uninterrupted recovery the temperature never going above normal. On Jan. 3d, a little over two weeks after the operation the wound was healed and the hearing for the watch was 3–16. From the day of the operation the Codeine and morphia were gradually withdrawn until she ceased their use entirely: Under the regulated diet, the sugar gradually decreased from 7% on Nov. 12th to less than ½ of one per cent at the present time. For the past three months the lady has been attending to her usual duties, and is looking exceedingly well. A few words as to the differential diagnosis of brain lesions caused by purulent otitis media. There are three conditions which especially interest us and they are:

(1.) Meningitis.

(2.) Cerebral Abscess.

(3.) Lateral Sinus Thrombosis.

Let us take up the symptoms of sinus clot first, since it is the one in which we are at present most interested.

Dench says "the symptoms are insidious and may escape notice for some time but one which will attract attention first is the sudden and alarming rise in temperature. He says that this may be the only symptom and unless the temperature is taken at frequent intervals, it may be overlooked. This sudden rise of temperature is due no doubt to septic material passing into the circulation. Symptoms referable to the cranial contents such as headache, local and general convulsions, paralysis, mental dullness and delirium, are absent in uncomplicated cases, according to Dench, while Keen on the contrary gives these as constant symptoms. Dench says when these are present we should always suspect involvement of the cerebral substance itself or of secondary meningitis. The involvement of the tissues down the neck is also given as a symptom, but I do not believe it is of any importance for we have it in

uncomplicated mastoid abscess. The early diagnosis of lateral sinus clot is of great importance, and the only evidence of it is the temperature, and for this reason it should be taken frequently, say every hour or two where we suspect this condition. In our case this was the one symptom upon which we relied to bear us out in our diagnosis, and it did not fail us.

I give here a brief tabulation of the symptoms of the three conditions mentioned before:

Sinus Thrombosis.

Violent oscillations of temperature.
Repeated rigors and sweats.
Pain on pressure over sinus.
Tenderness along anterior border of Sterno-cleido-mastoid muscle.

Otitic Meningitis.

Pain very sharp and general.
Delirium even early.
Temperature very high with slghter variations than in sinus clot.

Cerebral Abscess.

Nearly always follows a chronic otitis media; In 57 cases reported by Pitt in only two had the otitis dilated pupil on side of lesion existed less than a year.
Initial rise of temperature then subnormal.
Dull pain localized over the mastoid.
Intellect dull.
Foetid breath.
Occasionally optic neuritis.

From the above tabulation you can readily understand how complex are these cases. Before closing, I desire to make a statement and (while it is not borne out by authority,) it has been my experience viz: In all cases of hemorrhage into the tympanic cavity, not due to injury, there is I believe some kidney lesion. Dr. Roosa says "It is well established that hemorrhage into the middle ear may occur in the kidney disease, just as

from the retinal vessels." He reports two cases and states that he does not believe that they come under the classification of hemorrhage from vessels made a theromatous by renal disease, yet one case dies later on from cerebral hemorrhage. I believe these cases had renal disease and that a careful examination of the urine frequently made would have proved this. We all know that slight traces of sugar and albumen are easily overlooked. We occasionally have hemorrhage into the tympanum in Bright's disease but it is very rare. Just a few words more. In all cases of middle ear hemorrhage, examine the urine, especially for sugar. Of course all cases of middle ear trouble complicated with renal disease, will not end in mastoid abscess but they are prone to do so nor will all cases end in lateral sinus clot, but they are more liable to do so than uncomplicated ones. At any rate your prognosis should always be guarded as to prompt recovery and even life.

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A CASE OF HEMORRHAGE FROM EXTERNAL AUDITORY CANAL.*

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A HEMORRHAGE from an healthy external auditory canal, is a very rare and unusual condition; and a hemorrhage from a macroscopic normal cutaneous surface, is a condition that one hardly expects to see. Five cases of this condition have already been reported, and I wish to present, for your consideration today, a sixth.

The five cases I refer to, have been reported by Ferreril,[1] Stepanow [2], Eitelberg [3], Gradenigo [4], Stein [5]. The cases reported by these observers were all alike in essential features, excepting Stein's. The first four occurred in hysterical women, and were vicarious to menstruation. In these cases the hemorrhage only occurred a few times, never being continuous. Stein's case was that of a boy of thirteen years of age. These authorities supposed the blood to issue from the ducts of the ceruminal glands. In Grodinigo's case there was distinct syphilitic history.

The patient is a negro, female, thirty years of age, a prostitute. Her previous history presents nothing of interest previous to coming under my observation. I first

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1. Archiv für Ohrenheilkunde., xiv pp 173.
2. *Mitth.* f Ohrenheilkunde., No. 11, 1885.
3. Internat Klin Rundschau, Nos. 3 and 4.
4. Archiv für Ohrenheilkunde, xxvii, pp 82, 1889.
5. Zeitschr f Ohrenheilkunde, xxiv, 4.

saw her in May 1893, for a syphilitic lesion of the tonsils and pharyngeal walls. This lesion manifested itself in the form of tertiary ulcers. The patient denied most positively the existence of primary lesion or secondary symptoms, but as the lesion was absolutely characteristic there was never any suspicion as to the diagnosis. As the patient would not keep herself under treatment, in a satisfactory manner, it was many months before the lesion were brought to complete resolution.

About a year after the syphilitic lesions in throat had healed, she sought my advise on account of an occasional showing of blood in the left auditory canal. The bleeding would take place for a day or two, and be followed by an intermission of nearly a week; when it would recur again. The hemorrhage kept up at about this degree of frequency, and with about the same intermission, for a period of six months.

In February 1895, the bleeding became more copious, and intermitted only four days during the whole month. Since March, 1895, the hemorrhage has been practically continuous. Some days the bleeding will be more profuse than on others, but nevertheless there has not been a single day upon which there has not been some hemorrhage. Since January of the present year, the hemorrhage has been more profuse than at any period since the case has been under my observation. It would be impossible to measure the amount of blood lost during the twenty-four hours. At the earlier period there was never more than a showing of blood in the canal; the cutaneous surface in the superficial portion, simply being moist with fresh blood; and some dry blood, clotted, in the deeper portion of canal and over membrana tympani. Since the hemorrhage has become more copious, I always find considerable evidences of hemorrhage at each visit. The handkerchief with which the patient binds the ear, generally shows evidence of fresh blood; the absorbent cotton, with which she fills out the concha, is generally saturated with fresh blood; the superficial portion of canal is generally filled with partially coagulated blood; and the deeper portions of canal with dark red, fully coagulated, clots. The patient will tell me that she had

changed her dressing within an hour or so before my arrival. I should judge that she was bleeding about four to eight grams daily. Often I will see evidences, such as bloody cotton in the cuspidor or wash bowl, or a bloody handkerchief about, which bear evidence to the truth of this statement. This hemorrhage had no relation to the menstrual function. The bleeding would occur while she menstruated and during the intervals of menstruation. Since the bleeding has been continous it is modified in no way by the occurrance of the menstrual epoch.

The condition of the ear is as follows:

The Pinna is shapely and normal in appearance. The meatus is narrow in its anterior-posterior diameter, on account of a slight thickening of the anterior wall of cartilaginous canal.

Auditory canal:—Normal in appearance throughout. There is no break in the cutaneous surface throughout the whole canal. The membrana tympani present the usual appearance of the membrana in an advanced case of chronic middle ear catarrh. It is hardly necessary to mention that there is not, nor ever has been, any congestion or solution of continuity of the membrana tympani. The Eustachian tube is patulous and air enters the middle ear freely by all methods of inflation. No new growth or ulceration has ever shown itself in the canal.

The subjective symptoms are as follows:—Pain has been very marked throughout the whole history of the case, Spontaneous pain is very pronounced over mastoid and over parietal region. Pressure on the mastoid and over parietal region causes flinching and outcries of pain. Drawing upon the auricle and the introduction of speculum are also very painful to patient. Tinnitus has been a gradually increasing symptom. At present patient complains very greatly of it; it is limited solely to the affected ear. Vertiginous attacks are very frequent. These attacks of vertigo are often so severe as to cause the patient to have fears as to her personal safety when on the street. Deafness in affected ear is marked in degree.

During the early history of the case when the hemorr-

hage was intermitted in its type, and even now, when an exacerbation of the bleeding is about to occur, all the subject symptoms are intensified, and are relieved when the bleeding sets in.

The hearing distance for left ear is $\frac{4}{40}$. The tuning fork is heard better by tone than aerial conduction.

REMARKS:

When the case first came under my observation, I was very skeptical as to its true nature, being very much inclined to believe that the patient was hysterical or malingering. After several months observation I was forced to conclude that the hemorrhage was beyond the control of the patient; as I had adopted various methods to detect her as a malingerer and these had all proved negative in their result. The sources of the bleeding I have never been able positively to determine, although I think it undoubtly from the ceruminous glands.

The pathological condition which underlies the case is in someway connected with the syphilitic history, probably through its influence on the cervical sympathetic.

The treatment has been highly unsatisfactory. She has been kept, as closely as possible, on anti-syphilitic treatment with the use of general and local haemostatics but without result. I attempted to have her try electrical treatment, but as it was unfortunately, attended with increased rather than amelioration of her symptoms on its only trial, she refused to seek further relief through this agent.

At the February meeting of the Society of Ophthalmology and Otology of Washington City, this patient was presented for observation and suggestions.

IN CONCLUSION:

Hemorrhage can take place from an intact auditory canal with imperforate membrane.

This hemorrhage, in all probability, issues from the ducts of the ceruminal glands.

It can occur in either sex, although more frequent in women.

It occurs more frequently vicarious to menstruation, although it can be independent, in its occurrance, of the menstrual function.

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HAEMATOMA AURIS.

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FORMERLY SUPERINTENDENT OF KANSAS STATE INSANE ASYLUM.

Haematoma Auris or othaematoma may be traumatic or idiopathic in origin. In cases due to trauma there is simply an extravasation of blood due to violence. In either case there is an effusion of blood or of bloody serum between the cartilage of the ear and its perichondrium. It occurs among the sane and the insane. It does not often occur early in cases of insanity. Insanity becomes chronic after a year or two. The vitality of the patient is lowered by long confinement; the tissues are soft and become bruised very easily. The will of the patient fails to control his emotions; cerebral congestion is common. There is degeneration of the nervous system, particularly the vaso motor fibres of the cervical sympathetic, which is functionally disordered, with or without, cerebral disturbance. Mental excitement aggravates this condition. Add to the condition just described, slight or great mechanical violence, and the cause of haematoma is complete. It seems impossible for this condition to be brought about without some mechanical violence. Patients frequently have hallucinations that impel them to box their own ears, or rub them violently on the pillow. It occurs in point of frequency in forms of insanity in the order named as general paresis, epileptic insanity, chronic mania and melancholia. Nearly four per cent of male idiots are afflicted with it. It is absent in secondary dementia.

Pathology. No definite arterial lesion is necessary. The posterior auricular artery is distributed to the posterior or inner surface of the auricle. This vessel and its branches are frequently the seat of lesions that occur in othaematoma. Blood effusions occur in the perichondrium; the tissues undergo softening or degeneration; when undisturbed haematoma auris under-

goes changes similar to haematoma in other parts of the body. The cartilage may be abraded in spots. It does not cause tinnitus, and if the external auditory canal remains partially open it does not cause deafness. Haematoma attacks the neurotic or neurasthenic. Dr. Brown Sequard says that persons afflicted with it, while they may not be insane, surely have disease at the base of the brain. Dr. Hare of Albany, N. Y., supports him in this view and goes a little further, claiming that persons suffering from this malady should be carefully watched for mental unbalance. It never attacks the lobule of the ear—being limited to the cartilaginous portion of the auricle and is not ushered in by rigors which fact readily distinguishes it from erysipelis. It is not dangerous to life.

I shall not describe the many scores of cases of othaematomata which I have seen, but content myself with the following which are typical:

Case I. Alfred —, aged 30 years, had the misfortune to loose a "claim" and to misplace his affections; he brooded over both losses until his mind became hopelessly broken. About two years after his commitment to the insane asylum, there appeared in the left ear a smooth, ovoid swelling of bright red color, tense and tender to the touch. Fluctuation was readily elicited. The local temperature was slightly elevated. The tumor, which occupied the helix, soon attained the size of a hen's egg, involving the whole anterior surface of the ear, obliterating its superficial configuration and blocking up the external auditory meatus. It was painted twice daily with tincture of iodine. Recovery took place in six to eight weeks, leaving the ear distorted and shrunken to about four-fifths its normal size. Two years later the right ear was similarly attacked with like results.

Cace II. Richard, aged 42 years, afflicted with general paresis. His face for several years presented that smooth, ironed out appearance due to fibrillar paralysis in the sub-cutaneous muscular tissue, so characteristic of general paresis. Haematoma of the left ear appeared. A free incision was made over the anterior surface from the upper to the lower edge of the cartilage. Blood clots and a little yellowish red serum were turned out. The cartilage was eroded in a few spots, but beyond this it was smooth and healthy. The sac was washed out daily with 1 to 5,000 sublimate solution and packed with iodoform gauze for several days. The wound healed in less time than a month and very little deformity was left.

Case III. James, aged 52 years, was afflicted with alcoholic lateral sclerosis. He had religious delusions and begged con-

stantly for wine and whiskey. A livid plum blue colored tumor appeared in the concha. It was painted with cantharides collodion twice daily, but the skin cracked and the bloody contents shot out a distance of ten feet. It refilled, but finally disappeared by absorption. The result was great thickening and deformity of the auricle.

Case IV. Frank, aged 20 years, sane, while driving a delivery wagon fell out, striking the side of his head upon the pavement, which produced haematoma of the left ear. It was dressed with cold applications at first, then painted with cantharides collodion and absorption took place in about two months, but some deformity and considerable thickening of the auricle remained. The victim of this accident was considered rather "queer" by his employer who thought seriously of discharging him, but did not. In this case it is quite probable that the fall caused some disturbance at the base of the brain.

In the sane the tumor is more tender, lacks the livid plum blue color of the haematoma of the insane. It rarely ruptures, and absorption is more complete, and wrikling and deformity less marked.

Spontaneous rupture of the tumor is more common than absorption. When we are satisfied that rupture is inevitable, the sooner we puncture the better, because, the tumor being liberated, can no longer separate the skin from the cartilage, thus lessening the amount of deformity.

Haematoma occurs oftener in men than in women. It occurs more frequently in forms of insanity, where excitement runs high. It is not common during the first year of insanity. If it comes on early in insanity and is clearly due to traumatic causes, it does not interfere with the chances of recovery in the least. If it occurs idiopathically in cases of insanity of one to three years standing it betokens an unfavorable outlook. When it occurs during the course of general paresis, it indicates an early fatal termination.

ADENOID VEGETATIONS: THE ANAESTHETICS, THE INSTRUMENTS, THE OPERATIONS; WITH SPECIAL REFERENCE TO OPERATION UNDER BROMIDE OF ETHYL ANAESTHESIA

By T. Melville Hardie, M. D.,
of Chicago.

I. Shall we operate? I shall take it for granted that very few of us agree with the views expressed by Hermet (Paris Society of Laryngology, Otology and Rhinology, January 4th, 1895; Journal of Laryngology, 1895, p. 456.) You will rember that he limits operative intervention to children who present the following symptoms: retarded or arrested development, persistent headhache, intense difficuty in breathing with threatened suffocation, diminution of hearing power due to repeated catarrh of the tympanum, purulent median otitis, constant salivation, and appearance of hebetude. Since 1886 he has operated on but 14 patients out of 103 cases observed by him. It is hardly necessary to combat this statement since it is common knowlege that the ears for example are seriously affected in many more than 14 out of every 100 sufferers from adenoid vegetations.

Supporting Hermet in America is Ralph W. Seiss (Therapeutic Gazette, Nov. 15, 1894,) who asserts that he has rarely seen benefit but frequently much injury to the ears through the operation. May I ask for an expression of your opinion on this, so far as my experience goes, extraordinary experience?

II Shall we use an anaesthetic? There will never be agreement on this point. Operation without an anaesthe-

tic is more common among German larynlogists who until a few years ago never used anaesthetics in the operation. An exception to this was the use of cocain when a snare was used through the nose. At the meeting of the German Otological Association, held at Jena June 1 and 2, 1895, (Archiv. f. Ohrenheilk XXXIX, 2 and 3,) Beckman, Hoffmann, Stacke, Seligmann were opposed to anaesthesia; Noltenius, Joel were in favor of it; Kayser and Hartmann occasionally used it. A similar difference of opinion existed at the meeting of the Berlin Larynlogical Society June 1, 1893, at which E. Meyer, supported by Rosenberg and others, advocated the use of bromide of ethyl. TheEnglish school is also divided although the majority use general anaesthesia; the Golden Square adherents frequently employ chloroform while nitrous oxide is in favor at Gray's Inn Road where Dundas Grant so ardently advocatee it. The Chicago Medical Society discussion reported in the March number 1895 of the Chicago Medical Recorder showed an even greater diversity of opinion. Bromide of ethyl, ether, chloroform and no anaesthetic were all praised. Bromide of ethyl is largely used in France and Italy.

The objection to giving an anæsthetic is the addition of an element of danger to an operation which is nearly devoid of risk. This danger may come from the effect of the anæsthetic upon heart or respiration or from the possibility of the entrance of blood or adenoid tissue into the larynx.

As reasons for using anæsthetics may be mentioned (1) the fact that the operation is usually a painful one, frequently a very painful one (2) a thorough operation, which is by most men considered necessary, cannot as a rule be performed without general anæsthesia except in adults (3) a burned child dreads the fire, and a child who has had curette or forceps used once will ever after retain decided objections to a second introduction of the instrument. Children, like elephants, have long memories for injuries, and the infliction of severe pain upon a child, who cannot understand the reason for it is apt to severely strain any friendly relations which may have existed up to that time; these last are of importance if one remembers the possibility of diphtheria and its attendant necessary treatment.

You will conclude, I hope, that in the absence of disease of heart or lungs, and where the growth is not limited to one central mass merely, and where the child is old enough to know it is being hurt and to remember it, anæsthesia should be induced. In very young children and in sturdy or phlegmatic older children, in whom the growth can be removed with one sweep of the curette, it may be dispensed with.

III. Which anaesthetic shall we employ? This question practically resolves itself into two others, viz. (1) which is the safest; and, of minor importance, (2) is this safest anæsthetic always suitable? Our choice lies between cocaine for local anæsthesia, and nitrous oxide, ethyl bromide, ether, chloroform and combination of these in general anæsthesia. A consideration of pental may be omitted.

The conclusion arrived at in special discussions held in the Laryngological Society of London (British Medical Journal April 21 1896) and the Society of Anæsthetists (Lancet March 24 1894) may be mentioned. In very simple cases nitrous-oxide gas alone or combined with oxygen might prove sufficient; but for more prolonged operations, such as for example, when both tonsils and growths require removal or the growths are too scattered or too tough for rapid operations, either ether or chloroform is required. The order of safety, if we may judge from statistics such as e. g. those of Gurlt (Archiv, f, klin. Chir. Vol. 1, 1894) places ethyl bromide much nearer to chloroform than to ether in scale of safety.

Chloroform 166,813 cases with 63 deaths
1: 2647
Ethyl-bromide 7541 cases " 2 "
1: 3770
Ether 16, 320 " 2 "
1: 13160

Morgenthau (Chicago Medical Recorder March 1895) has carefully examined the literature so far as concerns bromide of ethyl, and I shall take the liberty of quoting his abstract in this connection.

"These figures will certainly be modified in the next report as far as ethyl bromide is concerned, making the ratio a much more favorable one as the number of administra-

tions increases; the Billroth case of the patient with diseased heart turning the scales most unfairly.

The discussion on this subject in the Berlin Laryngological Society (Berlin klin. Woch., No. 1, 1894) shows well how contradictory are the views held by various observers. While the essayist, Ed. Meyer, relying on 200 successful administrations, could speak highly of the lack of danger and the other good qualities of this drug, Grabower quoted the results of experiments on rabbits. He declares it to be one of the most dangerous narcotics, if not the most dangerous one. After a few inspirations the pulse rate is greatly increased; later on arythmia, then genuine cardiac delirium with utter lack of coordination of the different parts of the heart. In a short time the heart stops. During arythmia there is no abnormity of respiration. Thus there is no warning of danger as with other narcotics. Others controverted the right to draw conclusions from experiments on animals in reference to the human economy.

In his "Text-Book on Therapeutics," Hare draws attention to the studies made in Jefferson laboratory, which show that the dominant action of ethyl bromide is on respiration, not on the circulatory system. Its effect is depressant, but only seen after excessive doses. Blood pressure falls under its influence to a slight degree, and the pulse is slowed through an influence probably exercised on the inhibitory nervous mechanism of the heart.

H. C. Wood, however, from a series of experiments made upon lower animals, has arrived at the opinion that it acts upon the heart in a manner similar to chloroform, although its influence is not so depressing. A more recent investigator, Brubacher, found, in experimental intoxications of rabbits and guinea pigs, that the heart always continued to beat regularly and powerfully after respiration had ceased.

Schneider, Professor of Dentistry at the University of Erlangen (Monatschr. of Zahnhelik., May, 1890,) who uses ethyl bromide extensively in his practice, made a most searching series of experiments in the physiological laboratory. His deductions appear well founded, and are as follows:

While it may be admitted that under the influence of

chloroform, the red blood corpuscles are disintegrated, producing fatty metamorphosis, we must deny a similar action to ethyl bromide in every respect; believing that we proved by microscopic, chemical, and physical examination:

That bromide of ethyl cannot produce any change whatsoever in the red blood corpuscles.

That bromide of ethyl, on account of its lower boiling point, is very rapidly eliminated from the body by the lungs.

We, and with us most of the authors, have observed that even in deepest bromide of ethyl narcoses the pupils are hardly contracted. This proves that these vapors have not an energetically paralyzing influence on the medulla, because the narcosis is reduced to a previous stage by the rapid elimination of these vapors by the lungs. It was demonstrated moreover, by the hemodynamometer that the blood pressure always suffices for an exchange of gases; and finally, the sphygmographic curves, of which the author made a great number, show hardly any change in the pulse tracings. This proves that contraction of the muscles of the vessels takes place, while most chloroform tracings show paralysis of the vasomotors. There is a slight diminution of the blood pressure from reduced innervation. That is to say, cardiac alterations are much less than in chloroform narcosis. With at least as much right as it is maintained of ether, bromide of ethyl has only a slight depressant action on the heart; and death from ether results from paralysis of the respiratory center. When ethyl bromide was administered to animals in fatal doses, respiration stoped sooner than the heart, which continued to beat regularly and vigorously after respiration had ceased."

I have used chloroform in something like 60 cases in my private practice without any fatality but the distressing frequency with which deaths from its use are reported in the British Medical Journal during 1895 have made me fear it, and I expect to use it less and less as the years pass. The Clover inhaler removes many of the unpleasant features of ether adminstration and, for operations which are necessarily prolonged beyond the anæsthetic limit of nitrous oxide and ethyl bromide, ether should be the anæsthetic of election.

I cannot speak of nitrous oxide from the point of view of personal experience. I am satisfied that the time of anæsthesia would be of sufficient length for some operations. I am equally certain that it is often too short. I have satisfactorily removed two tonsils and adenoid tissue, this last requiring two introductions of the curette, under bromide of ethyl but required every half minute that the drug allowed and therefore feel that the much briefer anæsthesia of nitrous oxide would not have sufficed—Cocaine should, in this operation, be used in adults only. The only death from cocaine poisoning which I have seen occurred at Golden Square Throat Hospital after a little had been sprayed into the nose of a boy of five or six and a Meyer curette operation performed. Its judicious employment in the adult is of course a well recognized procedure, but I am careful to make few promises with regard to painlessness if the pharyngeal tonsil is of small size and tough. May I recur for a moment to bromide of ethyl? Wherein lie its advantages? The question of its safety is still a moot one and will require, I think, further laboratory and clinical study. Buxton's suggestion that the halogen group it contains is a dangerous one must be confirmed before it can properly be accepted. Omitting the question of its absolute safety the advantages of the drug may be briefly mentioned:

1. The laryngeal reflex very probably persists, and any blood or tissue entering the larynx is promptly expelled.

2. The sitting posture of the patient possible in the exhibition of this anæsthetic is the most convenient one for operation upon tonsils and adenoid growth, and makes easy the psssage of the blood from the nose and mouth; little of it is swallowed as a rule.

3. Nausea and vomiting are rare and the patient as a rule experiences but little discomfort after the operation.

The disadvantages of the anæsthetic:

1. It is not perfectly safe, four or five deaths having been reported.

2. The time of anæsthesia is not always long enough to permit of thorough operation. In my experience this is not usual but it cannot on the other hand be called very infrequent.

3. The anæsthetic is not always well taken. Witzel,

who reports 465 anæsthesias (*Monatsschr. f. Zahnhilek.* 189.) and who believes it to be the least dangerous anæsthetic, tabulates the following unpleasant effects occuring in 28 cases:

a. Great excitation in 9 cases, in four with much sweating.

b. Cyanosis in 2 students somewhat the worse for liquor.

c. Asphyxia, but rarely with his method; first a few drops, then the whole quantity of the anæsthetic.

d. Malaise, lassitude, vomiting.

e. Urination in three cases.

f. Great sexual excitement.

g. In two cases he could not produce anæsthesia with one and two ounces.

Morgenthau (loc. cit), in his series of 100 cases, reports 3 cases of vomiting a short time after the operation; one nervous girl of ten could not on two different occasions, with an interval of a week, be brought under the influence of the anæsthetic. Twice he observed a peculiar after effect. "The children presented a grayish rather ghastly hue in their complexion, the pulse was accelerated but strong. This state lasted two weeks without producing any discomfort." In my own cases, seventy five in number, marked excitement and struggling was present in quite a number of the anæsthesias. I am never disappointed when it occurs in nervous children and am inclined to think that this unpleasant occurrence is more apt to occur in the American than in the German child. It would not be possible I think to operate as radically upon American children without anæsthesia as was done in the clinics of Hartman and Berlin. In the five adults in whom I used bromide of ethyl nothing of this kind occurred. One of my patients, a girl of eleven, became cyanotic during the anæsthesia but this condition promptly disappeared on my drawing the tongue forward with my finger. I did this because the child's father had told me that the child frequently became "blue in the face" when asleep and that he had found the condition relieved by his "hooking the tongue out" as I have mentioned. I may here be permitted to depart from my text to further remark that these unpleasant nocturnal awakenings ceased with the removal of the adenoids.

I would not generally use bromide of ethyl when disease of the heart or lungs existed, although I did employ it in the case of a well developed boy of fifteen who suffered from a functional heart murmur. I placed him on his back, and operated on him in this position, and have occasionally, 3 or 4 times, operated with the patient in the same position when I had no assistant. I am also of the opinion that ether or chloroform should be substituted in cases in which an absolutely complete removal of the tissue is essential and in which the limits of the development of the growth can not be exactly defined. This is of particular importance in cases in which there are numerous or large glands at angle of the jaw.

IV. *The Operations and the Instruments.* Of operations and instruments one has an abundance to choose from. The cautery, chemical and electrical, the snare in its various forms, forceps and curettes of many patterns including the artificial and educated natural finger nail have their advocates. I shall consider them briefly in their order.

Cauterization. Cauterization is obviously a slow form of treatment and should therefore not commend itself to the present day surgeon. A second objection to its use is that in the nature of things it cannot be employed accurately excepting in the case of adults. The action of trichloractic or chromic acid cannot be definitely localized in the vault of the naso-pharynx. I can see no good purpose served in using a curved and protected electrode introduced behind the soft palate as recommended by Bosworth, or the straight electrode introduced through the nose. With each one there is the possibility at any rate of burning something besides the adenoid growth; their use necessitates a prolonged use of antiseptic washes. There is the long drawn out possibility of middle ear infection and the certainty that the eustachian tube and middle ear are not being benefited during the course of treatment. If the growth is to be attacked in this way I think preference should be given to the concealed applicator which can be placed in position on the growth before the acid-bearing tip is protruded.

The Snare. The snare comes next on our list. This al-

so may be introduced through the anterior nares or through the naso pharynx. Bosworth frequently used No. 5 piano wire in a modified Jarvis snare, fourteen inches in length.

"The end of this is curved in a quadrant of a circle whose radius is one and one-fourth inches." I shall quote his description: "Having observed the growth, and carefully estimated its size, a loop is formed which will embrace it, and is then bent forward over the end of the instrument in order to give it a decided kink. The wire is now played out of the snare about an eight of an inch, and the whole loop is now thrown backward toward the handle of the instrument giving it another bend." The loop is then adjusted to the growth and rapidly drawn into the tube by turning the screw. Occasionally to children he gives an anesthetic and uses the straight snare through the nose. "Having mounted the snare with the wire, the loop was bent sharply down over the end of the instrument, giving it a kink, and then drawn within the tube, until only a loop remained sufficiently small to pass through the nares; this was passed vertically until the loop was in the pharynx, when the instrument was turned, bringing the loop into a horizontal position with the side undermost toward which the larger loop had been bent. The wire was now played into the pharynx when the bend which had already been given it, threw the loop downward, nearly to a right angle. The whole instrument was now pressed firmly against the pharynx . . . the screw turned and the growth severed. As soon as the instrument was withdrawn the child's head was drawn over the table, with the face downward, and the trifling hemorrhage allowed to go on for a few moments, when the same manipulation was repeated through the nasal cavity of the opposite side, after which the child was easily aroused when the masses were expelled by blowing the nose."

I have been particular to give this in the writer's own words, because I wish it to be compared with the operation I shall describe later.

A more clearly expressed description of the operation with the cold wire snare, is contained in Chiari's paper (11th Internat. Medical Congress, Rome. *Journal of Laryngol.* 1895, p. 689.) The most useful thickness of

steel wire is one of 0.36 m. The operation is conducted in the following way: Both nasal passages are cocainized by means of a twenty per cent. solution of hydrochlorate of cocaine on cotton-wool swabs from before backward as far as possible, extending into the naso pharynx, for one or two minutes. Then the snare placed vertically is passed through the inferior meatus, with or without the guidance of light, until it reaches the naso pharynx, when the handle is lifted up so that the snare may pass underneath the vegetations and the instrument is then turned through a right angle so that the snare comes to lie horizontally. The instrument is now drawn back so far that the wire may touch the septum (which is easily recognized by tactile sense,) and then the handle of the instrnment is lowered so that the vegetations may come at their point of attachment within the grip of the snare. A simple closure of the snare is then sufficient to effect their removal. This proceeding is on either side to be repeated from three to four times, and the tube is either kept perfectly straight or pushed further outwards or inwards so as to remove all the growths. With reasonable children no assistant was required. Unruly patients, on the other hand, have to be wrapped in a sheet, held upon the seat by an assistant, while a second fixes the head.

Chiari's records are very favorable; of 233 cases in private practice cure was effected in one sitting 66 times, in two sittings 56 times, in 3 sittings 33 times, in four to nine sittings 8 times; *i. e.* 163 recoveries; of the remainder 46 were not operated on, and in 24 the operation with the snare was unsuccessful chiefly on account of the narrow build of the nose. The advantages of the method according to Chiari are (1) its absolute freedom from danger (2) the slight bleeding (3) the absence of reaction (4) the painlessness (5) the possibility of carrying it out without narcosis. To two of these statements I take exception. The operation under cocaine in young children is by no means devoid of danger as is illustrated, for example, by the case already cited in another place in this paper. The operation is not painless, unless indeed one uses cocaine in dangerous amount.

My own use of the snare is confined to adults, and I em-

ploy occasionally either the hollow stiff ring of Hartmann, introduced through the mouth, or more often the straight snare through the nose. This last procedure is frequently done under cocaine anesthesia without objection on the part of a patient who would seriously demur to anything which involved the use of (to his mind) cutting instruments, such as forceps or curette. I can see no advantage in the galvano-cautery snare, notwithstanding its many warm advocates. Its presence is too urgently impressed upon and remembered by the patient and the alleged advantages in the way of asepsis and the prevention of bleeding are in the case of the first, mythical, and in that of the second, unimportant. I have not forgotten recently published and strong recommendations of this method. (*Rousseaux Rev. de laryngologie de* 15 Juin 1891). Before leaving electrical applications, we should perhaps mention electrolysis. The anode, a sponge electrode, is held by the patient, while the cathode, an insulated gold-pointed needle, is thrust into the vegetations and connection made. Treatment is very protracted as might be expected, and the financial results in an opulent and patient sufferer particularly gratifying.

The Curette. I am informed that there do exist a certain number of rhinologists who are guiltless of having a forceps or curette named after them. For that we should be grateful. A second cause for congratulation is that the original curette, devised by Meyer, of Copenhagen, is gradually being relegated to the place to which it belongs, which is not the naso-pharynx of an unanesthetised adenoid sufferer. As I have heard this curette praised publicly within the past two years, it is fitting that the reasons for not using it should also be set down. As you know, the ring knife is introduced through the nostril and manipulated in all possible directions, or more exactly by some who insert a mouth-gag and a guiding forefinger. I am not sure that all of you have experienced the sensation caused by the gentle introduction of an eustachian catheter, but if you have not, boil one of your silver catheters and learn something tangible about the production of pain, by putting it in the narrow nostril. If this is not sufficiently disagreeable, move it forcibly from side to side, taking care

to bear heavily upon the septum and on the pharyngeal wall. You are now, assuming the competency of your fifth pair of cranial nerves, in a position to intelligently recommend or condemn the use of the Meyer curette. Of other curettes, the best known are perhaps Hartmann's and Gottstein's. The former is introduced at the right side of the naso-pharynx, there rests in Rosenmuller's fossa and is then brought rapidly to the center of the vault and out of the mouth; the operation being then repeated for the other side. If one has an able-bodied assistant to hold the child, is able to dispense for a few moments with the presence of the parents, and what milk of human kindness is ordinarily resident within him, and possesses finally Hartmann's dexterity of manipulation and a set of his curettes, he may rapidly and satisfactorily remove a well developed mass of adenoids. More generally and easily used is Gottstein's, or one of its numerous modifications. The form I prefer I hand to you for inspection. You will compare it with this other pattern, in which the cutting edge of the curette is directed almost directly downward. If you will recall the position of the pharyngeal tonsil, as ordinarily developed, you will see that for best use the edge must have both a backward and a downward direction, in order that it may cut the growth situated near the septum on the pharyngeal vault. If the curette is used without a general anesthethic, as may always be done in adult patients, and frequently in children, when the greater part of the growth is central, you may proceed as follows: In an adult apply a small amount of a 10 or 20 per cent. solution of cocaine on an absorbent cotten applicator directly to the growth. The advantage of this method of using the cocain is that it is applied where it is needed, and in such amount that there is none to swallow. Wait a few (two or three) minutes, and make a second application. Wait three minutes, then operate. The patient uses the tongue depressor. The rhinoscopic mirror is held in the left hand, the curette in the right hand is adjusted to the growth; the rhinoscopic mirror is removed and the physician's left hand used to study the patient's head while the curette is pushed backward, and then downward through the tissue to be removed. This last either adheres to the knife when

it is taken out, or is expectorated by the patient. The somewhat free bleeding soon ceases. In the child in whom the rhinoscopic mirror and cocaine are not to be employed, the tongue depressor is held in the physicians's left, while he inserts the curette toward the right side of the pharynx (so that the cutting edge is nearily vertical) and waits a moment for the soft palate to fall away from the posterior wall. Then without touching the soft palate, a rapid turn of the instrument brings it behind the uvula and against the posterior border of the septum in the vault, where it lies, with the cutting edge nearly horizontal. This manipulation must be done quickly, so that the soft palate has no time to enter more than an unavailing protest at the invasion. If the way is blocked by the soft palate, remove your nstrument and wait a moment, before making a second and more rapid attempt. Having the curette in position in the middle line, the tongue depressor is taken out and the left hand used as before. It is advisable in the cases of both old and young, but especially the latter, to have the hands held in order that your own hand may not be interfered with, as would too often happen unless such a precaution is taken.

The Forceps. Another instrument of which there are many forms is the Löwenburg forceps, which is used both with and without general anesthesia. In the original, the cutting edge of the blades is on their distal extremities. My preference is for Woakes' modification, in which the cutting edges are on the upper and posterior margins. Schech's instrument, in which all three margins are sharp, should not be used carelessly, as it is quite competent to injure the vomer, or the posterior end of the turbinated body. In Hooper's one blade overlaps the other. Another pattern has one blade smooth and the other cup-like and sharp, and two or three others, among them that of Curtis, have the blades fenestrated. Among forceps which operate from before backwards, may be mentioned those of Schech, Major, Casselberry and Owsley. The use of the forceps is not to be particularly recommended, I think, for the simple reason that the work can be more satisfactorily done as a rule by the curette and finger nail. If it is used, however, in an adult, it may be guided by the rhinoscopic

mirror. If this is impossible, its manipulation must be confined strictly to the median line in all transversely operating instruments to avoid injury to the mouth of the eustachian tubes, the edge of the vomer or the posterior end of the turbinated body. The same caution is not so necessary when using the antero-posterior instrument, but cannot be dispensed with. Under general anaesthesia the index finger of the left hand excellently guides the forceps of the offending growth, and used in this way no possible objection to it will hold. I cannot agree with those who contend that the operation cannot be completed at one sitting. Do not use the Dalby or Browne artificial finger nail. It is practically impossible to know accurately what is being scraped away, unless one can see or feel the object. The majority of patients cannot reasonably be expected to submit to a prolonged aud painful scraping of the pharyngeal vault, and the experience of most of us will show that a mere injury to the growth is not sufficient; in the majority of cases recurrence simply means incomplete removal of the growth.

When operating upon children I used to prefer chloroform anesthesia, if I was sure that the anesthetizer was competent. At the present time I incline to ether for the longer anaesthesia. The operation may most conveniently be done on any ordinary table having solid legs. It is well to lay on it one or two blankets and under the head of the table should be spread a rubber or dust sheet, if the operation is not done in a room with a bare floor. Provide also a pail for the reception of gauze and blood clots. There is also prepared beforehand a large bowl full of strips of antiseptic gauze. They are conveniently cut an inch or so wide from such packages as the Linton moist gauze or the Seabury. These strips are to be shaken out slightly so that when used as sponges they will readily absorb the blood. Have sterilised a Gottstein curette, Löwenburg forceps and mouth-gag. When anesthesia is complete, the patient's head is drawn over the end of the table (the patient lying on his back) the gag is introduced at the left side of the mouth and retained in position if necessary by the assistant who at the same time steadies the head. The operator rapidly introduces his right index finger and determines

the advisability of using curette or forceps or finger nail. if the curette is selected, the mass of the growth should come away with one or two introductions of the instrument, which, it may be remarked, must be brought well forward to the septum and kept in the middle line. The rather smart hemorrhage is controlled by the gauze sponges, introduced by the operator. But without waiting to dry it all up, the remaining growths are to be rapidly removed by curette or forceps or thoroughly broken down with the finger nail, and for these growths one must examine just internal to Rosenmuller's fossa, and it is likewise advisable to see that none project into the choanae. The operation when so done takes but a few minutes. If the bleeding is profuse, the gauze may be again used, and it is advisable to use the finger a second or third time to make sure that no other growths can be felt. The advantages of having the head well down over the end of the table are that the blood and (frequently) fragments of the adenoids came out of the nose; there is no danger of anything getting into the larynx, as is evident by the quiet breathing. I think, too, that in the lowered position of the head we have the centres of heart and respiration so well supplied with blood that the dangers of the anesthetic are minimized. It may be objected that the bleeding is more likely to be profuse with the dependent head, but as the head is not lowered, excepting during the few moments required to perform the operation, the objection is without force. I think that all who will compare the method just described, with that in which the horizontal position of the head requires interruption of the operation for the purpose of throwing the head over the side of the table so that blood will not enter the larynx, will be favorably impressed with it. In quite young children I rarely introduce any other curette than the finger nail, which is in the ordinary variety of adenoid vegetations quite strong enough to thoroughly extirpate them,

Another word as to anesthesia. I think decidedly that it should be complete. It is particularly annoying to have the child waken up the moment the finger is introduced into the naso-pharynx. I know that I am not supported in this contention by very many, but believe that if the head

is dependent there is no danger of blood and tissue entering the larynx. A small storage battery with electric forehead lamp is frequently a useful adjunct in this operation, particularly when tonsils are to be removed as well.

The operation under bromide of ethyl is done as follows: a piece of rubber sheeting is pinned about the neck of the patient who should be seated facing a good window on the lap of the assistant, if the child be young, or a solid chair, if twelve or more years of age and reasonable. If I must operate without assistance I prefer to have the patient in a recumbent position with his head conveniently near the edge or end of a lounge or a table. The assistant should hold the child's legs between his own knees and, unless a second assistant is present, steady the head by placing his right hand on the child's forehead and holding the head against his own chest, with his left hand he may hold one of the child's hands until anaesthesia is complete when he should hold both to prevent a possible accident in the event of the child's awakening before the operation is quite completed. A second assistant, if one is present, may hold the gag and steady the patient's head. In the older children and in adults but one assistant is required, his duties being to stand behind the patient's chair and hold the gag, steady the head and at the proper momont incline the head forward upon the chest. After reassuring the patient and inserting the gag, (Ducker's), about 3 or 4 drachms, a little less in a young child, a little more in an older one, are poured in the ether cone, or chloroform inhaler covered with oiled silk, which should contain some absorbent cotton or gauze as the bromide of ethyl is very volatile. This is held over the child's mouth and nose. It is my custom to let him smell it for a moment, remove it to reassure him and then closely cover the face again. The pulse quickens, the face flushes, and in one minute or less the breathing which at the beginning of the anaesthesia was unnatural, sometimes stertorous, becomes regular, and the right arm which I raise up and down during this part of the anaesthesia relaxes. Without delay open the mouth widely with the already inserted gag, depress the tongue, insert the Gottstein curette and operate as I suggested when discussing cocaine anaesthesia. The instrument may, how-

ever, be rapidly used three or four times, and it is possible to examine the naso pharynx with the thoroughly scrubbed index finger for attached fragments which may have escaped the curette. If the tonsils are also present they should be removed *after* the adenoid vegetations are operated upon on account of the free bleeding that would occur. If they are so large as to make operation upon the adenoid impracticable the galvano cautery snare (Gradle's) or the tonsillotome may be used for their preliminary removal. As soon as the operation is completed the head should be inclined forward so that the blood may easily flow from the nose and mouth. The patient wakes up almost immediately and after cleansing his mouth of the blood is told to lie down for a few minutes, when he is able as a rule to go home. It is better, though, to keep the patient under observation for half an hour at least. This was impressed upon me by an unpleasant experience. I removed the adenoid vegetations under ethyl bromide, kept the patient and her parents in my outer room for twenty minutes or more when I allowed them to go to an establishment across the street at which a doll was to be purchased for the little girl. Ten or fifteen minutes later I was hastily summoned to see the child who was reported to be bleeding furiously. I found her sleeping quietly after having vomited a good deal of blood and the breakfast which had been partaken of earlier,—which leads me to interject a suggestion which I omitted to mention in its proper place: that it is advisable that the operation be performed with stomach, bowels and bladder as nearly empty as it is practicable.

I have myself operated under bromide of ethyl anaesthesia upon only 43 private patients but my dispensary experience would bring my own cases well up to 150. I wish also to report that both Morgenthau and Holinger of Chicago have individually operated upon somewhat larger numbers and without accident of any sort.

CONCLUSIONS:

1. Adenoid vegetations should be removed under general anaesthesia in the great majority of young children.

2. The cold wire snare and cocain anaesthesia are satisfactory in older children and adults but cocain should not be used in young children.

3. Nitrous oxide anaesthesia is frequently of too brief duration for the proper performance of this operation.

4. Ethyl bromide, apart from the question of its safeness, which is still undecided, is a desirable anaesthetic in many cases.

5. Ethyl bromide is not well taken as a rule by very nervous or frightened children.

6. Ether should be substituted for bromide of ethyl where the operation is likely to be a lengthy one.

7. The Gottstein curette is, all things considered, the most satisfactory single instrument, and particularly in bromide of ethyl operations.

ABSTRACTS FROM CURRENT GERMAN OTOLOGICAL LITERATURE.

BY GEORGE MORGENTHAU, M. D.
OF CHICAGO.

The Middle Ear in Measles.

In publishing the report made by a former assistant on the results obtained from 18 postmortem examinations of ears of patients dying from measles, Bezold (Zeitschr. F. Ohrenheilk Bd. XXVIII. H. III April, 1896) contributes a valuable resume which serves as an addition to his views expressed in Schwartze's Hanabuch d. Ohrenheilk., Bd 2., pag. 309 (Mastoid diseases.) It was his purpose to test the remarkable observation made by Tobeitz (Archiv *f.* Kinderheilk, Bd. 8) that suppuration occurs in the middle ear of *all* patients with measles.

Although only that ear was selected for examination in which the clinical symptoms—if any at all had been present—were less than on the other side, a recent suppurative process was found in the cavities of the middle ear in every case. In most of these cases, and in others of measles, the secretion was examined bacteriologically during life. Streplococci were found most frequently; staphylococci, half as often; staphylococci aurei, somewhat more rarely; pyogenic bacteria being present in every instance.

On the third day after the appearance of the rash, the mucous membrane in the drum cavity as well as in the antrum and the mastoid cells may show vivid diffuse injection and swelling, and may be completely filled with purulent secretion; on the fourth day of the disease fibrinous deposits with extravasations may form in the drum and the antrum. From the fourth to the sixth day, small polypoid granulations may already shoot up in the bony portion of the Eustachian

tube, the drum, and the antrum. If there is a perforation of the drum membrane, the fibrinous exudate may also spread to its external surface. Spontaneous perforation of the membrane is a rare occurrence in the otitis of measles, as daily clinical experience shows. Considering the demonstrated presence of pyogenic microorganisms in all these cases of suppuration, the reaction in the mucous membrane of the middle ear must be regarded as remarkably slight, aside from the fibrinous exudates which appeared in not quite one-fourth of the number. Destruction of the mucous membrane with denudation of the bony walls, for instance, was never observed. The contrast between the reaction in the otitis of measles and the genuine, or the otitis in convalescence from typhoid, scarlet fever, etc., might be explained in two ways: Either the agent of inflammation is less severe on the tissues, or there is a diminution of the power of reaction affecting the whole organism at the height of the disease. The pus-producing bacteria having been found, by others and the author, to be the same as in the other kind of middle-ear suppuration, this theory is without formation. In favor of the second theory, moreover, is, above all, the greatly protracted course of measles otitis, which has long been recognized clinically. Clinical experience was also borne out by the postmortem evidences of protracted morbid processes. In confirmation, the author cites a case of otitis media purulenta with subperiosteal abscess following measles, in which, 18 days after operation, the reaction appearing regularly on denuded bone in a healthy organism was missing; only after 10 more days the bone was covered with the normal granulations. The same lack of reaction for a long period as in this instance was observed by the author, in bone denuded by operation or suppuration, after mastoid operations in the case of scarlet fever, typhoid fever, pyemia, and pulmonary phthisis. In no case, as far as the author knows, has the temporal bone been found intact postmortem in measles. He, therefore, advances the opinion that this form of otitis media purulenta acuta is an integral part of the general disease just as conjunctivtis, rhinitis, pharyngitis, and bronchitis. The whole appearance of the inflammation in the middle ear (injection in spots and points, extravasations, etc.,) invites comparison with the exanthem on the skin, and should be considered analagous to it. It is generally

admitted that the vast majority of children is attacked by measles.

According to the author's examinations of school-children, 52.49 % of 1807 had had measles. Futhermore, the children with impared hearing were not found to a greater extent among those who had a history of measles. Since, then, otitis is proven to be invariably a part of the disease of measles, it follows that, in the vast majority of these cases, the pus in the middle-ear cavities is completely absorbed without causing symptoms or complications.—

Incidentally, three points were also considered in the post-mortem examinations.

Swelling and inflammatory changes in the lymphatic glands beneath the anterior margin of the sterno-cleido-mastoid muscle were never missed.

In the oldest case (33 days after the eruption) abscesses were found in the lymphatic glands in the retromaxillary fossa, and escape of the pus into the nasopharynx below the pharyngeal tubal ostium.

The adenoid tissue in the nasopharynx was enlarged, injected in spots, often also covered with little bloody spots. Three times diphtheritic deposits were found on it. All these circumstances tend to prove the correctness of the opinion that acute infectious diseases in children, especially measles, are potent factors in developing adenoid vegetations in children. Finally attention was paid, in patients up to four years of age, to the anterior wall of the bony auditory canal. The results confirm Zuckerkandl's (Schwartze's Handb. Bd. I. S. 89) statement, that the external margin of the bony auditory canal is formed from 2. to 3. year, and the gap is filled in in the 3. year.

On the Pathogenic Action of the Bacillus Friedlaender: A Case of Acute Matastatic General Infection Following Otitis Media and Mastoid Empyema.

C. Brunner, Muensterlingen. (Muenchn. Med. Wochenschr. 31. Maerz, 1896, No. 12.)

Experience in late years has shown that Friedlaender's capsulated bacillus may, as well as the pyogenic streptococcus and staphylococcus, the pneumococcus the bacillus pyocyaneus, and the bacillus coli, cause local morbid processes of

different character but also general infection of the human organism of different clinical forms. According to Etienne, the microbe has been proven the morbific agent in the following diseases of organs: stomatitis, rhinitis, parolitis, otitis media purulenta, suppurative meningitis, pericarditis, pleurisy, pyelonephritis, as well as broncho-pneumonia. Brunner contributes his case, analyzed most carefully both clinically and bacteriologically, to the question if certain pathogenic microorganisms show pathognomonic peculiarities in their action on the human body; if, for instance, it is possible to differentiate a general disease caused by Friedlaender's bacillus from a pure general infection by another parasite.

A man of 55 had had suppurative otitis on the left side for 4 weeks, and had neglected it till severe pains set it. Swelling in the region of the mastoid only; drum-membrane, swollen; no secretion in meatus. Sep. 14, operation with chisel; abundant yellow pus escapes at remarkably great pressure; large abscess cavity. After treatment by family physician, who states that all symptoms were much alleviated. On fifth day, severe pains all over the head, drawing mainly towards occipital region; temperature, between 37.5 and 38.9; pulse 90-120. Feb. 29, Brunner was again consulted; patient, completely unconscious; groans frequently; has severe pains, apparently, with tenesmus in bladder; pupils, half dilated; pronounced stiffness of neck. Wound appears sweet. Albumin in urine; floccules of pus suspended. Temperature, 39 and 40. Repeated chills, clonic spasms.—Oct. 1, Death.

Postmortem examination, Oct. 2. On removal of dura whole surface of both hemispheres found covered with a layer of greenish-yellow gelatinous pus. Extensive purulent meningetis also at base of brain. Sinus transversus and longitudinalis filled with discolored thrombi, contain hardly any fluid blood. *Nowheres an abscess.* On removal of dura from base of skull, a rather large bony defect appears on petrous bone, communicating with trephine opening. *Spleen, very large and soft.* Advanced *cirrhosis of liver.* In both kidneys, especially in cortical substance, numerous smaller and larger abscesses surrounded by extravasations. Bladder, with a little turbid urine. Pus secured at time of operation was subjected to most careful bacterioscopic tests and inoculations. At the autopsy samples were taken from the meninges, the longitudinal sinus,

the heart, liver, spleen, kidneys, and urine. Everywhere pure cultures of the same bacillus were obtained. The author enumerates the reasons for identifying it as Friedlaender's bacillus. From the postmortem examination it seems probable that the mastoid suppuration extended to the meninges, sinuses, and brain through diseased bone. With the invasion of the venous sinuses the bacilli were enabled to spread through the general circulation, and to infect distant organs. Purulent metastases soon established themselves in the main excretory organs, the kidneys, and manifested themselves clinically. In the other organs, especially the spleen, no purulent foci but only parenchymatous swellings were produced. It is probable that, had the disease lasted longer, metastatic abscesses would have formed in other organs. It was a monoinfection, due to one species of microbes only. Pathognomonic characteristics, distinguishing it from other similar general infections, were lacking altogether. The course of the disease was most acute. The cirrhosis of the liver must be looked upon as a breach in the organism's system of antibacterial defenses. The author rejects the term, pyemia, for this process, because the fever was not intermittent but of a high continuous remittent type.

ABSTRACTS FROM CURRENT AMERICAN AND ENGLISH OTOLOGICAL LITERATURE.

BY T. MELVILLE HARDIE, M. D.,
OF CHICAGO.

The Hearing Power in Bilateral Congenital Atresia.

BEZOLD: The hearing power in cases of bilateral congenital atresia of the auditory canal with rudimentary Auricle. (*Archives of Otology*, April, 1896.)

Bezold reports two cases and reviews the literature. The morphological defects seem to be limited to the outer and middle ear affecting in order of frequency the annulus tympanicus, malleus incus and stapes. In ten of the sixteen cases the labyrinth was entirely normal. In Bezold's cases a boy aged twelve and a girl aged seven, the lower end of the scale was wanting for air conduction, but by bone conduction the entire scale from C_{-1} to the highest pitch of Galton's whistle was perceived. No breaks were found that would indicate labyrinthine involvement. The auditory disturbances are one not only to the shutting off of the labyrinth from external communication but also and in equal measure to the anomalies in the conducting apparatus. The symptom complex (1) a lengthening of the normal tone for bone conduction (2) a marked negative Rinne and (3) a defect for low tones by air conduction is the same as that present in acquired disturbances in the conducting apparatus and particularly in fixation of the stapes.

Diagnosis and Treatment of Cholesteatoma.

SCHEIBE: A contribution to the diagnosis and treatment of cholesteatoma in otitis media purulenta chronica (*Archives of Otology*, April 1896.)

With regard to the orgin of cholesteatoma the article upholds

the Bezold-Habermann theory that the epidermoidal transformation of the mucosa of the middle ear arises from the direct inward growth of the epidermis of the drumhead or of the meatus upon the mucous membrane deprived of its epithelium; tha what is termed cholesteatoma is nothing more than a process tending toward a cure. In 48 cases Scheibe was able to demonstrat epidermoidal changes in the mucosa of the aditus, in large defects of the meatus sometimes up to the antrum; in others the presence of cast off layers of epidermis in the attic. In each the perforation was peripheral—in the superior and superior-posterior border. In addition 14 autopsies were made. In 12 ear-disease was the cause of death. In these defect of Shrapnell's membrane and, in part, of the adjacent tissue was observed 6 times, defect of the drumhead up to the posterior upper margin 6 times. Scheibe has never been able to demonstrate, either clinically or post-mortem, the existence of cholesteatoma in chronic suppuration of the middle ear *when the perforation was central and the edge completely free.*

Diagnosis:—Otoscopic examination resulted in direct demonstration in 75 per cent. of the cases. By aid of the tympanic syringe cholesteatomatous masses were discovered in 91 per cent. The writer was able to demonstrate that Schwartze's operation would occasionally be insufficient for diagnostic purposes, resection of the posterior wall of the meatus being necessary. *Treatment:*—Of his 48 cases 3 were well when first seen; 38 were treated by direct injection and insufflation, of these there were cured 18 or 47 per cent; still under treatment 11, or 29 per cent.; disappeared 8, or 21 per cent.; 1 of the latter is reported to have died from cerebral abscess. One patient was cured by chiseling, but Scheibe neglects to mention the number operated upon. *Conclusions.*— If urgent symptoms exist, immediate opening of the mastoid with resection of the posterior wall of the meatus is to be made. Siebenmann's persistent retro-auricular opening is to be secured.

In the absence of urgent symptoms injections and insufflations (tympanic tube) are employed after removal of granulations by snare or curette. If the passage to the aditus be too narrow the hammer is removed.

In obstinate persistence of fœtor in spite of treatment resection of the posterior wall is indicated even if severe complications are wanting.

Occasional examination of cholesteatoma patient is necessary.

Extra-dural Abscess; Operation.

WOODS: Operation for extra-dural abscess. (*Dublin Journal of Medical Seience*, May, 1896.) Man aged 28 was operated upon for extra-dural abscess in the cerebellar fossa on the left side, complicated by thrombosis of the lateral sinus, following middle ear disease. Two days latter he was again trephined, and an abscess in the left temporo sphenoidal lobe evacuated; uninterrupted recovery.

Determation of Upper tone limit by the Galton Whistle.

ALDERTON: The upper tone limit in the normal and diseased ear, as determined by the Galton whistle (*Archives of Otology*, Jan. 1896.) The author's conclusion based upon the examination of 500 pathological cases are intended to supplement those of Siebenmann, Bezold and Zwaardemaker; no examinations were made of patients suffering from otitis media purulenta acuta.

Deductions: In non-inflammatory diseases of the external canal the upper tone limit is normal. In middle-ear diseases an average lowering of .18 to .55 is noticed. In functional affections of the labyrinth or nerve, the upper tone limit is very slightly impaired and may even be elevated in hyper-sensitive conditions. In labyrinthine or nerve disease the average upper tone limit is .6 below the normal. Combined middle- and internal-ear diseases are capable of producing a lower average upper tone limit than internal-ear disease alone.

While it is true that in general the results are what might be expected the exceptions are quite numerous, e.g., the gravity of the nerve lesion is not always indicated by the Galton or Schwabach tests but the writer belives that when a sufficient number of the exceptional cases are recorded the explanation of the apparent deviations from the given formulas will be obvious.

Living Larvae in the Ear.

BRAISLIN: A case of living larvae in the ear without previous suppuration. (*Archives of Otology*, Jan. 1896.) The

larvae, five in number, were (possibly) those of the Texas screw-worm fly, *Lucilia Macellaria*, which is attracted by the odor of decomposing matter. The unpleasant feature of the report is the fact that the patient, a *barber*, was a sufferer rom foetid atrophic rhinitis.

Case of Stapes Anchylosis.

BEZOLD: (*Archives of Otology*, Jan. 1896.) A further case of anchylosis of the stapes diagnosticated in life, with autopsy and manometric and histological examinations.

In this case there was present the triad of functional symptoms characteristic, in Bezold's opinion, of fixation of the stapes viz., lengthened bone conduction for low tones, marked negative Rinne, and extensive defect in air conduction at the lower end of the scale. The only marked departures from the normal were found at the stapedio-vestibular symphysis on both sides. The deposit about the pelvis ovalis consisted of spongy bone, poor in medulla, and extended in the better ear only through the region of the lower margin, while on the side of the deafer ear it occupied the entire promontory up to the niche of the round window, and involved to a less extent the upper margin of the oval window; the thickening of the foot plate was more marked on this side and was in places five times the normal. The thickening involved the foot plates on both sides in their entire extent, and was more marked in tne middle than at the margins; only the tympanic surface was thickened and rough, the labyrinthine surface being smooth. The foot plate in section therefore has the form of a plano-convex lens. The particular value of this case consists in the localization of the process to the stapes.

Bacteriology of Purulent Otitis Media.

STERN: Contributions to the Bacteriology of otitis media purulenta, (*Archives of Otology*, April, 1896.) Twenty one cases of chronic otitis media purulenta were examined with a view to the determination of the bacteriological character of the pus in the various phases of the disease. The secretion may be (1) profuse, muco-purulent, not foetid in acute attacks occuring during the course of the chronic variety; (2) profuse muco-purulent, foetid in cases which have existed sometime and in which the disharge is profuse; (3) thick, partly inspis-

sated and foetid in cases which have partially recovered and in which the secretion is limited to small areas. Pathogenic organisms may penetrate the tympanum alone or accompanied by saprophytes. If alone, the suppuration is analogous to the acute process. If accompanied by saprophytes they find favorable products for their development which, are wanting in acute suppuration. Later the rods develop their decomposing properties and foetor occurs. In cases of otorrhoea of long standing the microscopic preparation shows all imaginable forms, but the rods are much more numerous than the cocci, while the gelatine plates always give a simple picture, usually only one variety developing.

The author tabulates his findings as follows: Known forms. —Staphylococcus pyogenes albus, 6; Staphylococcus pyogenes aureus, 2; Streptococcus pyogenes, 3; Bacterium coli commune, 1. Unknown forms.—(*a*) Bacilli: *non liquefying:* cultures foetid, 2; cultures not foetid, 9. *liquefying:* cultures foetid, 4; cultures not foetid, 4. (*b*) Vibrios *non liquefying*; 4. (*c*) Cocci. *non-liquefying*; 3.

Case of Thrombosis of Lateral Sinus.

LUCAS: (*Bermingham Medical Review*, Jan. 1896.) On admission the patient complained of pain on the side of the head behind the ear, a very tender spot at the lower and posterior border of mastoid process, slight fulness in the neck about the course of the internal jugular, but no pain; she was drowsy; temperature 102°F; pulse 65 and full. August 8th: mastoid operation; very slight improvement, rigors daily. August 12th: lateral sinus opened, clot removed, sinus plugged with iodoform gauze; jugular exposed tied in two places and divided. It was thrombosed and the distal ligature was removed and the vein washed through from the opening in the sigmoid sinus. Temporary improvement; but ultimately rigors proptosis, (caused by pus extending from the cavernous sinus into the orbit,) and death, August 27th, from pyaemic infection of the lungs. Lucas believes that he should have diagnosed the thrombosis at the beginning and operated at the time of opening the mastoid.

Otiris Media; Haemorrhage; Cerebral Abscess.

ABBE. (*Annals of Surgery*, Jan. 1896.) The patient was

a child 2½ years old with purulent otitis. Temperature 101. 5° F. Without warning a sudden profuse haemorrhage, which, required plugging, took place from the affected ear. Abbe trephined to expose the lateral sinus; this was healthy, and no abscess was discovered on exploring from middle fossa. On the third day the temperature rose suddenly to 104-5°F. Believing the haemorrhage came from the lateral sinus or jugular he tied the jugular, exposed the (healthy) lateral sinus, inserted an iodoform plug in the sinus which he split across for this purpose thus blockading the jugular to prevent further bleeding. The child however died and postmortem examination showed a small loose equestrum of the inner plate of the tympanic cavity adjacent to the carotid. The carotid was plugged by a solid thrombus and at its point of contact with the necrosed bone it was *eroded*. There was a large abcess in the occipito-sphenoidal lobe containing two ounces of pus.

A CASE OF OBJECTIVELY PERCEPTIBLE TINNITUS AURIUM.

By Dr. Schwager,
of Kaiserslautern.

Translated By H. A. Alderton, M. D.,
from the Monhtsch. f. oarenh. Feb., 1896.

Towards the end of last year, I had the rare opportunity of observing a case of objectively perceptible tinnitus aurium. The patient was a fourteen year old girl, who told me that about four years ago, she fell head foremost into a brook and struck on the left side of the head. She became unconscious from fright and had to be pulled out of the water. Since then, she had been conscious of a peculiar rasping sound in the left ear, which continued day and night without interruption. The noise was very loud at first, but had diminished in intensity in the course of time.

Examination revealed the following:

The patient, a well built girl of rather anaemic appearance, had not yet menstruated, but had always been healthy and came of a sound family, particularly there was no nervous affection to consider. The internal organs, especially the heart and large vessels, were quite normal.

When one placed himself at a distance of 20 ctm. from the left ear of the patient, one perceived a peculiar rasping noise like that made by rubbing the edge of one finger nail upon another. The sound was rather irregular; after a series of beats following quickly one upon another, one heard several slower ones, then a pause, etc., just like the pulse in affections of the heart. Then again the number of pulsations a minute is continuous and may be counted as high as 110.

Aside from an unimportant thickening, and a moderate contraction of the light reflex, the tympanic membrane was nearly normal. Hearing distance for watch, 60/100; no hiatuses in

tone scale; C1 similarly perceived in both ears; no positive perception of Rinne on either side. Rarefaction of the air of the outer canal, as well as politzerization and Valsalva's procedure had no effect on the intensity or number of vibrations. No perceptible movement of the membrane. The condition of the right membrane about the same. No perceptible tinnitus in the right ear.

An examination of the upper air passages shows the nose normal; the tonsils on both sides slightly swollen; in the nasopharyngeal cavity, a flat cushion-like mass of adenoid vegetations. During the examination, I could perceive no movements at the orifice of the tube. The soft palate, uvula and palatine arch rose and fell synchronously with the pulsations in the ear. Patient was able to suppress and again call forth the sound. In the first case, the movements of the soft palate cease also. When the girl's attention was attracted to something else, the sounds and palpitations went on without cessation. The muscles of the larynx performed their normal functions. Patient said she had with each pulsation, a feeling as if something moved in the throat, and indicated as the seat of such feeling the anterior margin of the sterno-cleido-mastoid muscle.

The statement made by the girl that the tinnitus continued through the night was confirmed by the parents, for the anxious mother often went to the bed of the sleeping child, to listen for the distressing symptoms, and convinced herself each time that there was no change during sleep.

During the continuation of this trouble, for more than four years, it was said, as already mentioned, that it had diminished in intensity; but it seems probable to me that the patient simply became used to the condition.

In this case, we have clearly to do with a clonic cramp of the muscle tensor veli palati, through which movement, as is well known, the walls of the tube heave and give rise to a tinnitus of like character.

A very similar case was spoken of by Kaufmann, which he had observed in Gruber's clinic. It only differed from mine, in that the boy being very nervous, the tinnitus jumped from one ear to the other and ceased at night. In all other respects, the cases exactly correspond. There is such a wealth of information on the subject in the aforementioned article, that I would refer my readers to it, and spare them the repetition.

(1). This journal 1894, No. 5, page 141.

TRANSLATIONS FROM CURRENT FOREIGN OTOLOGICAL LITERATURE. (ABRIDGE.)

By H. A. Alderton, M. D.,
of Brooklyn.

Obstinate Diffuse Ext. Otitis Caused by the Graphii Verticielium.

D. M. Herzog, Chicago. (*Annals Mal. de l' or., etc.* January, 1896.)

A woman of 27 had suffered from 5 to 6 years with a sharp pain in both canals; the latter being red and swollen. The examination showed that there was present the verticillium graphii described by Harz, Bezold and Siebenmann. The cure was rapidly obtained by instillations of a 4 per cent. alcoholic solution of salicylic acid.

Otitic Facial Paralysis.

A. Trifiletti. (*Annals Des Mal de l' or., etc.* January 1896.)

The author gives the observation of an interesting fact which tends to confirm the ideas of Lannois and Gelle upon otitic paralysis.

A man of 40, without serious pathological history, only slight uric diathesis. After repeated coryzas, the left ear was affected with diminution of hearing, with sensation of obstruction, of weight and painful constriction, spreading over the left part of the head. Entotic noises. Under direct examination the m. t. appeared red, the handle of hammer hardly visible; no mobility to Seigle's. Watch heard on contact. Rinne feebly positive. The extreme sounds of Hartmann's forks not perceived. The left tube very little permeable. Catarrhal rhino-pharyngitis with tonsillar hypertrophy. After having been to the theatre, there ensued the following day a left facial paralysis. The internal treatment consisted in the administration of iodides of potassium and alkalines. Locally, the author employed the galvanic

current, air douches, with intra-tympanic instillation of alkaline solutions. Pulverizations for the nose and throat. The local condition of the ear, the hearing and the facial paralysis improved in 8 days, and the patient nearly cured, quitted Naples.

Four Cases of Involuntary Opening of the Lateral Sinus in the Course of Operation Upon the Mastoid Process.

CHIUGINI. (*Annales Des Mal de l' or, etc.* January 1896.)

In these four, the accident happened in the course of trephining for acute mastoiditis; when the operation was almost terminated and a last stroke with the curette was being given, a flow of venous blood indicated the opening of the lateral sinus. The curetting was, however, done without violence; no operatory fault explained the hemorrhage. The only anomaly was found in one case and as a sequel to chronic otitis, a marked degree of sclerosis of the process.

The treatment consisted in immediate tamponning with iodoform gauze and applying a sublimate dressing exteriorly. Cure without incident in 6 to 10 weeks.

A Case of Otitic Cerebellar Abscess.

HEIMAN, Varsorie. (*Annales Des Maladies de l' Orville, etc.* January, 1896.)

The patient had had two months' previous treatment for apparent meningitis. He had been affected about one year with right O. M. P.

When H. saw him for the first time there were marked symptoms of endo-cranial and probably of cerebellar abscess; pulse slow (48.52), temperature 37, intense headache dominant in the right occipital region, vertigo, disturbances of co-ordination (the head oscillating continually from right to left and from behind forward), continual vomiting, constipation, irregularity of deglutition, retention of urine, speech slow and difficult, inequality of the pupils, right facial paresis and vaso-motor disturbances on the left, increase of the patellar reflexes, apathy, somnolence and general debility. The patient was immediately trephined, and in spite of Heiman's advice, the abscess was looked for in the temporo-sphenoidal lobe. Though no pus was found, the patient improved notably, the apathy and somnolence disappeared, the symptoms of paralysis improved, the vomitings ceased completely. Nevertheless, after a little time the illness increased. Later they tried twice anti-syphilitic treatment, they trephined the mastoid and attic, and finally the region of the

right lobe of the cerebellum anew. All these operations gave improvement of only short duration. No pus was found during the operation upon the cerebellum. About six months before his death, the patient had left purulent otitis with severe pain in the left temporal and parietal regions persisting two months. When these disappeared, the occipital pains reappeared in the right. The patient was observed and cared for two months in the hospital; he succumbed to general and pulmonary tuberculosis.

The autopsy showed the existence of abscess of the right lobe and the vermiform process of the cerebellum, caries of the right temporal, tuberculosis of the lungs, peribronchial pyopneumothorax, general marasmus.

The malady therefore persisted three years in all; the abscess was probably evolved in two and one-half years; all the operations had the same result, causing temporary amelioration by diminishing the intra-cranial pressure. Heiman regards the tuberculosis as a consequence of the caries of the temporal, which probably was from the beginning of tuberculous nature, though we may not exclude consecutive infection as the patient remained during a long time in the midst of consumptives. The negative result of the operation upon the cerebellum was accidental and does not permit us to deny the existence of an abscess.

Cavernous Angioma of the Middle Ear.

MOURE. (*Annals Des Mal, de l' o., etc.* 1896.)

After remarking that this variety of tumor is very rare, Moure reports the observation of a woman of 47 who consulted him for an enormous polyp of the ear which projected to the orifice of the canal. The external part was smooth, except a point surmounted by a little reddish tumor large as a grain of wheat which gave issue to spontaneous hemorrhages.

Ablation with cold snare was followed by so considerable a hemorrhage that the author was obliged to tampon the canal up to the tympanum with iodoform gauze. The patient recovered and subsequently Moure saw that the polyp was inserted at the posterio-superior part of the tympanum.

The histiological examination demonstrated that it was a cavernous angioma.

General Treatment of Internal Otitis.

GRADENIGO. (*Annals Des Mal. de l' or., etc.* 1896.)

Internal otitis which produces progressive deafness may be

divided into two principal classes; those due to acquired morbid causes, and those originating in heredity.

The former, which are the frequent origin of primary labyrinthine lesions, are oftenest of syphilitic or rheumatic nature; others are caused by noisy occupations, by tuberculosis, by infectious maladies of acute character, etc. In recent syphilitic forms, the specific treatment gives marvellous results; in the rheumatic forms, the effects of the treatment are ordinarily less brilliant and sometimes absolutely nil. The professional forms are ameliorated by the iodides and the tuberculous forms by general treatment.

The second class of otitis interna belongs to hereditary etiology which produces a notable diminution of resistance of the organism to general pathogenic causes and which finds its clinical expression in the tendency which predisposes in a child, to acute catarrh of the principal air passages recurring and becoming chronic, being accompanied by corresponding modifications of the mucous membranes (hypertrophy of the tonsils and the nasal membrane, adenoid vegetations). From the rhino-pharynx the affection is propagated to the middle ear and thence to the internal ear. The type of these otitis is the labyrinthitis secondary to chronic middle catarrhal otitis; general sclerosis.

Patients under the second category may be redivided into three principal groups:

I. The non-tuberculous belonging to a tuberculous family (para-tuberculosis auricular sclerosis).

II. Those of syphilitic parents (parasyphilitic sclerosis according to Fournier).

III. Those whose families are tainted with identical auricular affections (otitic heredity); ordinarily the patients or some of the family present rheumatic symptoms, arthritic or gouty.

In the first two groups, it is not properly speaking a question of hereditary tuberculosis or syphilis; it concerns an affection attenuated by heredity to the value of a simple diathesis, impairment of nutrition or diminution of the organic resistance, This is why treatment gives in general poor results, even in the parasyphilitic forms, and explains the fact of the patient being affected from his earliest years, the time at which the malady appears, and why he comes often for advice when the trouble is advanced to the cicatricial period. It is therefore necessary to attend particularly to naso-pharyngeal affections in children.

Primary Osteitis of the Mastoid Process.

BRIEGER, Breslau. (*Annals Des Mal. de l' or., etc.* 1896.)

Primary mastoiditis is rare; however, some observations have been published upon it. As for those concerning acute infectious osteo-myelitis, if that affection attacks the bones of the head there exists no reason to deny a priori that it tends to localize in the temporal. I have observed cases in which one could diagnosticate with certitude an acute mastoid osteomyelitis, so far as diagnosis based upon the mere clinical facts may be considered certain. A man was attacked suddenly with fever, chills, and mastoid pain; there existed no lesion of the middle ear. It was only after 8 to 10 days that symptoms of the participation of the tympanic cavity appeared. Three months afterwards a secondary abscess of the muscles of the neck was manifested with formation of a large sequestrum. The tympanum was free.

From the practical point of view, in the Bezold forms of mastoiditis one should not limit the intervention to opening the mastoid process; a sequestrum should be searched for. The exact diagnosis is important also from the operatory point of view because if there exists a primary osteomyelitis, one may not only abandon the opening of the attic and of the aditus but it might become dangerous, as one risks infecting the primary centers of the bone.

Mastoid osteitis may be primary also in typhus and in influenza. Kuhn has tried to establish the existence of a diabetic mastoiditis; I do not think we should admit that form, diabetes not representing a well localized morbid condition.

Primary mastoid tuberculosis is too easily affirmed by Kuster; the tuberculous nature is difficult to demonstrate even by inoculations; ordinarily, animals inoculated with morbid products die from pyogenic processes.

Our knowledge of primary affections of the mastoid process are limited, observations of them being rare.

Pathological Alteration of the Labyrinth.

POLITZER. (*Annales Des Mal. de l' or., etc.* 1896.)

The principal alterations are: 1st—hyperaemia; 2nd—hemorrhagic exudations of the labyrinth; 3rd—primary or secondary inflammations and their sequelae.

1st. Hyperaemia: Eichler's investigations made known the vascular disposition of the labyrinth, and it is this vascular system which is the seat of the hyperaemia in certain infectious otitis, and particularly in typhus and in scarlatinous diphtheria. Another frequent cause of hyperaemia is the increase of endo-

cranial pressure and especially of tumors of the base which proliferate towards the internal auditory canal. Others are in relation to nervous causes; others again are collateral hyperaemiae which cause vascular dilation, pigmentary accumulations, etc.

2nd. Hemorrhagic Exudations: These may be in connection with hyperaemia, but they are also encountered without pre-existant hyperaemia. They are oftenest observed in the course of infectious maladies and in disturbances of the general circulation. They are more frequent than one would think in chronic suppurations of the tympanum, in certain forms of meningitis. As to labyrinthine hemorrhages, they bear the name of Meniere's disease and are reduced to a single case recorded by that author; no other observation of the kind having been received, the anatomical basis of Meniere's is lacking and it can only be a question of a particular set of symptoms from the clinical point of view. Like hyperaemia of long duration, hemorrhages frequently produce pigmentary deposits in the labyrinth.

3rd. Inflammations of the Labyrinth: Concerning primary inflammations we know only the results; but we have more precise information upon secondary inflammations. The most notable modifications are shown especially in the inferior part of the cochlea. The explanations of this fact are varied, but the most admissible is that of Steinbrugge who thinks that it is due to the propagation of the affection from the cranial cavity.

I have described at the Milan Congress the first case of primary labyrinthine affection.

(a) The anatomical lesions produced by infectious maladies come either from the invasion of specific microbes or from those of purulent matter into the labyrinth. There follows an inflammation of the membranous labyrinth causing either destruction of the tissues or the proliferation of the connective tissue.

(b) The lesions due to diphtheria were studied by Moos who explained the secondary infection of the labyrinthine cavities by the streptococcus.

(c) Nearly the same lesions have been also observed by Moos in measles. The effect of the micro-organisms is manifested in this case, according to the author, by a fatty degeneration of the endothelium of the blood vessels which will cause coagulation and thrombosis and colloid alterations of the labyrinthine tissues.

(d) The alterations attending cerebro-spinal meningitis were recognized by Helmholtz; these are the aqueducts of the laby-

rinth which transmit the infection from the endo-cranial cavity. (From the anatomo-pathologic researches of other authors and of my own, the infection is propagated from the meninges to the labyrinth by way of the internal auditory canal in the majority of cases.—Gradenigo.)

(e) I have myself recognized the frequency of labyrinthine affections secondary to chronic suppurative otitis media, either by the destruction of the apertures of the labyrinth, or by the simple propagation of the morbid process the length of the blood vessels and lymphatics. In a certain number of cases of chronic suppuration, I have recognized in the cochlea the consequences of a proliferent inflammation.

(f) Another form of labyrinthine exudation is caused by the presence of an obstacle in the internal auditory canal which compresses the vessels within it.

(g) The labyrinth may also be affected in cases of leucaemia; I have reported the first case at the Brussels Congress: Gradenigo has described a second, Steinbrugge a third, etc.

(h) Syphilis provokes alterations in the labyrinth of the same nature; we describe more especially in this regard the hyperostosis of the temporal with narrowing of the oval window. Among rare occurrences I will cite atrophy of the nervous cells of the spiral ganglion (Moos, Steinbrugge). Kirchner observed the infiltration of the small cells of the membranous labyrinth; Moos the thickening of the periosteum; Gradenigo has shown in the ulterior development of the connective tissue, the possibility of an ossification of the latter which he thinks attributable to hereditary syphilis.

(i) Following tuberculosis we meet labyrinthine affections, not primary however. Cases of this kind are imputable to tuberculous maladies of the middle ear, with ulcerations and perforations of the labyrinthine capsule.

(j) I have described at the Congress of Rome the primary affections of the labyrinthitic capsule. It is a question of osseous proliferations around the oval window which ends by producing an anchylosis of the stirrup and the ossification of the tympanic scala of the cochlea.

(k) We must finally mention the depression of Reissner's membrane in consequence of the increase of the extra labyrinthine pressure upon the organ of Corti, described first by Steinbrugge and confirmed by other authors, Gomperz among others.

If all these observations have shown the importance of the study of labyrinthine affections, not only for the appreciation of the anatomical lesions of the ear but more for the diagnosis of

auditory disturbances springing from the labyrinth, one will acknowledge that we are at the beginning of scientific ideas upon these diseases; we should however be proud of the results already obtained as points of departure for future discoveries.

Contribution to the Study of the Origin of the Auditory Nerve Fibres.

F. M. MATTE. (*Annals Des Mal. de l' or etc.* 1896.)

The question raised concerning the ciliated cells of the labyrinth is whether, as V. Lenhossek has indicated, these are sensorial epithelial cells (Sinnesepithelzellen), that is to say, differentiated epithelial cells surrounded by a nervous plexus whose origin is elsewhere, or if they are sensorial nervous cells (Sinnesnervenzellen), themselves the point of departure of centripetal fibres.

The embryonic researches of His, go to show that the origins of the auditory nerve are found in the cochlea and vestibulary ganglia. But experimentally the extirpation of the membranous labyrinth removes only the cochlea ganglion and leaves the vestibulary ganglion intact.

Matte has experimented by operating in a pigeon, upon the posterior ampullae. After having shown that unilateral lesion determined passing vertiginous movements while the bilateral lesion was accompanied by more persistent troubles, he concludes that the cells of the acoustic crests have a manifest trophic action upon the nervous fibres with which they are in relation.

The fibres of the acoustic nerve are of two different kinds and may be qualified as sensorial and sensible. The first arise from the cells of the vestibulary ganglion which acts like a spinal ganglion; the second have their origin in the neuro-epithelial cells of the periphery.

Liquid Vaseline in Treatment of Middle Ear Affectons.

DALSTANCHE. (*Annales Des Mal, de l' or.* 1896.)

Delstanche confirms the good results that he has obtained for several years by intra-tympanic injections of liquid vaseline in acute as well as chronic affections of the middle ear. He does not think that in exudative forms one could completely replace paracentesis by the injection of vaseline. The two methods work reciprocally. Delstanche insists besides upon the advantages of this treatment in acute otitis, where one succeeds sometimes in rapidly aborting the malady. During the injection, the patient will hold the head a little forward, the point of the syringe

should be adjusted exactly to the cone of the catheter and the quantity injected 3 to 4 grammes. The vaseline should be colorless and odorless and chemically pure. In the infectious forms 4 per cent. of iodoform may be added.

DISCUSSION.

Politzer. I wish to remark that from the result of my researches, the sclerosis is caused by primary osseous lesions; also, in cases of this kind, it will be illusory to look for essential amelioration by intra-tympanic injections.

Delie (Ypres).

To avoid intolerence of iodides, administer them in wine mixed with tannin.

Anomalies of the Development of the Stapes.

M. S. TOMK. (Buda Pesth). (*Annales Des Mal, de l' or., etc.* January, 1896.

Two cases briefly described: In the first the stapes had only one branch attached almost to the middle of a small abnormal plate and was united to the anterior and posterior walls of the oval aperture by thin fibrous filaments. The muscle of the stapes and its tendon were missing.

In the second case, the stapes was constituted by a triangular osseous lamella, whose borders corresponding to the branches, were thickened and whose part corresponding to the head was much developed. No anomaly of muscle nor tendon. In both cases the mobility of the stapes was normal.

Contraction of the Jaw Consequent Upon Ear Lesions.

FERRERI. (*Annales Des Mal. de l' or., etc.*, 1896).

It is rare enough that a difficulty in the movements of the jaw supervenes in the course of an ear affection, or the consequence of a temporo-maxillary arthritis. Such a difficulty results oftenest from a temporary contraction and perhaps also from a cicatricial retraction from a vast destruction of the osseous and cartilagenous portions of the canal. Though it is not common, acute temporo-maxillary arthritis is sometimes observed in infants through complications in tuberculous lesions of the ear; however, it often escapes attention either because the auricular lesions are more prominent, or because the signs of the arthritis are so fugitive that the physician overlooks them. With a large number of children affected with acute suppurative otitis, F. has noted a temporary contraction of the maxilla accom-

panied with pain and tumefaction of the articular region; it is probably hydrarthrosis with spontaneous resolution. It is possible that much of the temporo-maxillary arthritis is the consequence of past otitis unperceived because they were not followed by anchylosis. Moreover, as Koenig has remarked, the mobility may persist, in spite of the destruction of the condyle or the extraction of deposits injuring the articular head.

F. has three times observed inflammation and anchylosis of the temporo-maxillary articulation following suppuration of the ear. In two cases there was chronic otitis media, in the other acute osteo-periostitis of the canal. F. rapidly reviews the works published upon this subject. He remarks that arthritis is specially observed in children, doubtless because in them, the anterio-inferior bony wall presents an opening more or less large, due to a lack of ossification and which is filled only by the skin of the canal and the periosteum.

There exists three modes of treatment of these anchyloses: 1st.—the resection of the condyle, an operation which may wound the external carotid and the facial nerve and which allows only a very imperfect restoration of movement; 2nd.—Esmarch's operation which consists in removing a more or less considerable portion of bone, circumscribed between two trephine holes; 3rd—the osteotomy proposed by Rizzoli and which is certainly the most simple method.

Preliminary Notes upon Some Peculiarities of the Negro Race From the Otological Point of View.

DE ROALDÉS (New Orleans). (*Annales Des Mal. de l'or., etc.* 1996.)

The auricle of the ear is usually smaller and more fleshy in the black than the white; the lines of contour of the elevations and depression are less graceful; the auricle in its entirety adheres more to the side of the head.

The auditory canal is more developed in the negro than in the white; this cavity, as well as all those which end in (border upon) the organs of sense, is much more spacious in the first than in the Caucasian subject. Besides, the canal in the negro is much straighter than that of the white, and this character is so marked, that it is one of the last to be effaced in those of mixed blood. The examination of the tympanic membrane is therefore easy, and may be sometimes made with the aid of binocular vision.

The membrane itself does not offer remarkable comparativ-

peculiarities, except perhaps a little less brilliancy and transparency. It may be the same with the angle formed by the membrane with the axis of the canal, which may be less in the negro, but this point needs elucidation by means of a series of prints. The coloration of the skin is less accentuated in the canal than upon the body, and it is not rare to meet, even in an individual very black, a canal scarcely colored. Our anatomical researches upon the middle ear are too incomplete to permit drawing any conclusions. The mastoid process and the cavities which it encloses are smaller than in the white, as is generally shown for the sinuses accessory to the face.

The nose and the rhino-pharynx are very spacious; the nose is flattened and the openings of the nostrils are large; the meatus ample; the septum regular and the dimension of the choana seems to assure to the black, freer nasal respiration than in the white.

As to the pathology of the auditory organ, eczema of the auricle is less frequent than with the white; perhaps the greater thickness and the cutaneous pigmentation would explain this. The only difference between the white and the negro in simple dermatitis of the auricle is that the initial erythema is difficult to observe upon the second. In the black, I have not found hematoma, but sebaceous and serous cysts.

Keloid productions are frequent in the negro and their recurrences are comparable to those of naso-pharyngeal polyps in the white.

Of six cases of epithelioma of the auricle observed by me, none concerned the black race. The larger calibre of the canal renders the presence of plugs of cerumen more rare; on the other side, the rectilinear direction of the canal would seem to favor the penetration of foreign bodies, but I have not met with it oftener in the negro than in the white.

As to otitis media, I agree in general with Murrell who accords to the black a certain tendency to suppurative otitis; nevertheless, one must not be too absolute. Complications of the suppurative form are rarely seen. My observations differ notably from Murrell's concerning dry otitis, which, according to this author, would be exceptional with negroes. I admit, however, that these forms are more rare in the black than in the white. Ordinarily one meets fewer deaf among negroes. As to deaf-mutes, of 24 that I have seen, there was only one black. The census of 1880 in the United States shows one deaf-mute in 1484 whites and 2186 negroes. That of 1890 gives, for a population of a million, 745 deaf-mutes white, and 438 black;

in other localities for the same number of persons the proportion was 659 whites and only 304 blacks. There is therefore an appreciable difference between the two races.

Adenoid vegetations exist in the black, even in the purest African type, in spite of the denial of certain authors and even more frequently than one would believe. But I will add that these tumors are incomparably more rare than in the white, and if they have less importance in the consideration of otitis media, it is because of the much greater proportions of the nasal fossae and of the pharynx.

Intra-cranial Complications of Purulent Otitis Media, Acute and Chronic.

G. GRADENIGO. (*Annales Des Mal. de l' or., etc.* 1893.)

Of 68 cases of chronic and acute mastoiditis operated upon by myself in the course of this year, 12 presented endo-cranial complications (17.6 per cent.) a relatively large proportion. The complications reached the number of 14; 5 extra-dural abscesses, 2 cerebral, 2 cerebellar, 3 thrombi of the sinus, 2 otitic meningitis. The numerical proportions between the various forms of the complications do not at all conform to those stated by Jansen (Comptes rendus de la Societe Allemande d'Otologie); according to this author, the relation between the number of extra-dural abscesses, thromboses of the sinus, and cerebral abscesses is 28:7:1. As the result of my operations, extra-dural abscesses not associated with other complications (3) are all cured, the same with the cerebral abscesses (2); the cerebellar abscesses (2) have succumbed, meningitis has caused two deaths; as to the thrombosis of the lateral sinus, one case cured (without tying the jugular), one patient has succumbed to a cerebellar abscess remaining latent; with the last patient, operation was not attempted as the patient was in too serious a condition when she was brought to the clinic; meningitis and purulent pulmonary foci.

The diagnosis of the location is the most important for the treatment; at present, one of the principal guides to the diagnosis is represented by the nature and localization of the morbid process of the ear. It should be insisted upon that operations for the endo-cranial complications of otitis should be executed rather by the aurist than the general surgeon; the former being able much more exactly than the latter to understand the affection of the tympanum or mastoid. I will add that the operation itself offers fewer technical difficulties than the radical operation for otorrhoea.

In the majority of cases, one may establish the diagnosis of meningitis with great probability, especially since the authoritative publication of Jansen upon septic thrombosis of the transverse sinus with perisinal abscess. As to cerebral abscesses, these can only be diagnosticated with certitude when the auricular lesion is seated at the left and when there exists verbal amnesia or aphasia. This symptom aided me in discovering the abscess of the left temporo-sphenoidal lobe in my two cured cases. The cerebellar abscesses are the most difficult to diagnosticate.

It is important to note that, while cerebellar and cerebral abscesses may affect an almost latent course, symptoms are observed simulating an endo-cranial affection, in affections limited to the temporal or simple extra-dural abscesses. I have seen a pronounced optic papillitis in a case of perisinal extra-dural abscess without thrombosis of the sinus, while I have never seen this symptom in other cases of cerebral abscess and thrombosis.

The following case is not without interest. A young girl of 16 entered the clinic for a left chronic otorrhoea, sharp pain in the ear and in the left part of the head, rigidity of the back of the neck, slight opisthotonous, vomiting, fever, childish speech with peculiarly changed voice: It was merely a left mastoid empyaemia entirely dissipated by the operation.

I could multiply similar examples, but it suffices to remark that we should not always presume otitis in connection with nervous accidents existing contingently in the same patient, even if they simulate endo-cranial complication, especially if the individual is young.

Certain points of the operatory technique deserve discussion. I believe the surgeon should act in accordance with the case presented to him, whether the symptoms of otitic complication are not grave and do not claim immediate operation, or whether the operation is imposed by the dangers threatening the life of the patient. In the first case, one should operate at first upon the mastoid, as this serves to establish precisely the nature of the otitic affection and to find out the existence of complications in the regions immediately bordering upon the temporal bone. If these complications exist, the surgeon will operate in one sitting if possible; if they do not exist, he will wait several days before proceeding to new operations to see finally the effect of the intervention upon the temporal.

If the operation is urgent, and one can make at least a probable diagnosis, it is better to proceed directly by a temporary resection upon the cranium, and to treat the otitic affection only

by a second operation, if the abscess has been discovered by the first.

When the diagnostic signs are lacking, even in an urgent case, it will be well to first trephine the mastoid with the idea of establishing as precisely as possible, the modalities of the ulterior intervention. The mastoid method will be ordinarily to explore the sinus and open extra- dural abscesses. For discovering and opening cerebral and cerebellar abscesses I believe it inopportune to select the way of the mastoid and tympanum; it is much preferable to trephine the cranium at the part corresponding to the supposed cerebral focus. Thus we best avoid the infection from the suppurating auricular cavities and will have a larger and more commodious field of observation. If the interference is urgent and a foundation for the diagnosis of a deep abscess is missing, we will open first the mastoid to see if there exist or not alterations that may aid in exploring the focus; in case of negative result, we will lay bare the sinus largely, and the cerebral and cerebellar dura-mater around this point.

For the exploration, I believe that when precise diagnostic indications are lacking, and there exist no grave symptoms, one is not authorized in incising the dura-mater. The cerebral hernia which sometimes follows, is a formidable complication, which one should not encounter, if not in presence of an immediate peril or when the diagnosis is probable. In other cases the interference should be limited to an exploratory puncture and aspiration with a trocar of 3 millimeters diameter and maximum depth of 3 centimeters. In one case I have aspirated by a canula of this kind, fragments of cerebellar substance and I have been able to exclude the existence of a deep abscess; the patient experiencing no annoying consequence by the interference. In grave cases, I hesitate no longer, if the exploration with the needle-canula is negative, to incise the dura-mater and introduce the bistoury. A good method consists also in examining with the microscope the liquid obtained by the aspiration. The operation of one of my cases of cerebral abscess made me discover the presence of the latter by the fetid odor of the little serous fluid extracted by the canula.

DISCUSSION.

Politzer: In many cases the diagnosis is very difficult; often a cerebral abscess takes a latent course, often it is even multiple. An important symptom is the fixed pain corresponding to the seat of the lesion. It must not be forgotten that results remote from the operation are most uncertain; a patient who had been

operated upon with success ended by dying of a relapse after several years.

Brieger: Contrary to Pritchard, I think that the existence of meningitis is up to the present an absolute contra-indication to operation for cerebral abscess.

A FURTHER CONTRIBUTION TO THE USE OF THE GALVANO-CAUTERY IN PTERYGIUM OPERATIONS.

By Arthur G. Hobbs, M. D.
of Atlanta, Ga.

Since presenting my first paper (*The treatment of Pterygia with the Galvano-Cautery*) before the American Medical Association in San Francisco, two years ago, I have employed the cautery 21 times in Pterigia proper and 12 times in pinguecula, its usual antecedent. In my earlier contributions to this subject I pointed out that the principal object to be obtained by a pterygium operation is to prevent two raw surfaces from remaining in apposition after the operation, in order to obviate the relapses that we too frequently see. Why not then convert each of the raw surfaces into an eschar at once, to avoid such failures, provided we are able to demonstrate practically that this means will bring about that result?

For some years the galvano-cautery point has been resorted to in corneal ulcers, particularly in those indolent and intractable ulcers which have refused to yield to other methods of treatment. It was suggested to me a few years ago, after seeing some of the beautiful results of the cautery when applied to ulcers of the cornea that it could, at least, produce no bad results if properly applied to the neck of a pterygium, for the purpose of cutting off the nutrition of its corneal apex. I hoped that it would prove a better means of severing the arterial supply to the apex as it crossed the sclero-corneal junction. This object is generally attained, by the use of the knife and various other methods have also been resorted to. The failures in pterygium operations are usually due to the resulting reestablish-

ment of the arterial circulation, and when this occurs the desired end of the operation fails in proportion to the number of the reestablished vessels. The great vascularity of a pterygium, with its vessels crossing over the sclero-corneal line to supply its apex, renders it difficult to permanently sever all the arteries by a clean cut, hence many knife and scissor operations have been resorted to, by different operators, to accomplish this end.

Each surgeon aims at one end primarily, and that is to completely cut off all the blood supply from the corneal apex. Secondarily, his desire is to destroy as little conjunctiva as possible. When the first end is attained, the corneal part of the pterygium has lost its direct nutrition and, then depends upon the cornea proper for its sustenance. As this meager supply proves insufficient, atrophy results and the partial, or almost complete, obliteration after a time will depend upon the activity of the absorbents. For this reason the best results are obtained in younger subjects in which as a rule, the lymphatics are more active, as is also the contractibility, of the arterial coats.

In many cases when the knife is resorted to a secondary pterygium results, in which case sufficient nutrition is supplied to the apex to perpetuate the corneal haziness even beyond its apparent margin and to greatly interfere with vision. When the cautery section is well made I have not seen these secondary results that are often so difficult to prevent by a clean cut with the knife or scissors. In some cases, however, it may be best to combine the methods of operating as I have done in two cases not included in this report. These two pterygia were extremely vascular and thick, hence I first used the knife in the usual way and then seared the divided edges with the cautery blade to prevent the secondary results. I do not now do this.

The fine-pointed cautery blade, heated with a battery that can be perfectly gauged and always relied on, is applied horizontally to the narrowest portion of the growth which is near the sclero-corneal line; the application is made just before white heat is reached and should be quickly applied and reapplied, if the tissues are not at first completely severed. If the growth is not adherent to the sclera and corneal margin it is best to grasp it with small

forceps and raise it from the sclera. When the forceps are used it is easier to be certain that the cautery has made a complete section of all the hypertrophied tissue.

When the corneal head is large and protruding it is advisable to make a cautery application in the same manner as in applying it to a corneal ulcer. In both cases the resulting cicatrix is less—it is more transparent. This is not altogether an unknown fact but one that has seemed never to have been brought out as prominently as its importance would suggest. For this reason one may be tempted often to resort to the cautery to reduce a large pterygium apex or a corneal ulcer, for the purpose alone of attaining this corneal transparency. The resulting eschar completely severs the vascular connection, leaving no raw surfaces in apposition so that a reestablished circulation is practically impossible, this can not always be said when the knife or scissors has been used.

I would have resorted to this method more frequently but for that decided objection to the cautery which we so constantly encounter and which we are bound to respect.

To recapitulate the operation is quickly performed; it is followed by no bleeding; it leaves no ecchymosis; the wound heals more rapidly; there is very little pain during and after its performance; it requires no bandages and the eventual corneal haziness around the apex is slight.

A weak solution of cocaine (two per cent.,) is first dropped into the conjunctival sac, then after about five minutes a stronger solution, (about ten per cent.,) is applied locally, by means of a small cotton probe, for five minutes more, in the mean time the lids are held open. By this means the toxic effects are avoided except in those subjects that are unusually susceptible to cocaine. In using cocaine, in this latter strength, I try to avoid as much as possible, by the position of the patient, its contact with the cornea. It is now a well known fact that long continued applications of this drug, even in weak solution are disastrous to an abraded cornea.

During the past two years I am inclined to restrict the use of the cautery to cases with narrow necks,—those that can be raised with fine tooth forceps and—preferably to such of these as admit of a broad curved needle being

introduced beneath the narrow neck at the sclera-corneal as it is lifted from the sclera with the forceps. One or two quick touches with the small sharp cautery knife severs the fibrous tissue down to the needle, leaving both ends seared. This procedure at the same time prevents adhesion by first intention, and causes a retraction in both directions. One cross-stitch, to fill the conjunctival gap, and the operation is complete, unless it be advisable to touch the corneal apex lightly with the point heated to a cherry red. An antiseptic dressing with vaseline and the head bound with but a single wind of bandage is sufficient to lessen the friction of the lids on the wound and is conducive to comfort during the healing process.

In three cases of double pterygia I have applied the cautery on one side and made a cutting operation on the companion eye. The results were in every instance in favor of the cautery, that is to say, the latter method was more quickly done and was accompanied by less pain, while the healing process was shorter, and the cornea —the most important consideration of all—was left with considerably less opacity than when the cutting operations were employed.

Another consideration not to be lost sight of is that should a second operation be necessary the patient is much more likely to consent to it when the quickly performed, and almost painless, cauterization has been previously used than when the knife has been resorted to at first.

[Since the above was written I have used a broad blunt needle, groved on its concave as a safe guard, by first insinuating it through a small slit in the conjunctiva between the sclera and the narrow neck, close to the cornea. The cautery blade then cuts through the fold down to the groove. This is at least, a safer means for the beginner and I now think it is the best when the first step is practical, as it is not if the neck is broad and adherent to the sclera.]

INTUBATION IN THE ADULT WITH SPECIAL REFERENCE TO ACUTE STENOSIS OF THE LARYNX*.

By W. E. Casselberry, M. D.,
of Chicago.

Professor of Therapeutics and of Laryngology and Rhinology in Northwestern University Medical School; Laryngologist and Rhinologist to St. Lukes' Hospital; Laryngologist to Wesley Hospital; etc:

Although chronic stenosis of the larynx especially of the syphilitic and tuberculous types has received due attention in reference to treatment by intubation in the adult, the management of acute stenosis by the same means has received as yet but little notice.

It does not suffice to assume that the adult may be dealt with exactly like a child or that the treatment of acute stenosis, with its associated state of helplessness and exhaustion, is identical with that of chronic stenosis. Important distinctions obtain both as regards the technique of the intubation and the possible scope of the operation.

The six cases related embrace four of laryngeal diphtheria, one of acute oedema of the larynx and one in which the stenosis was of obscure origin but probably also oedematous.

The diphtheritic cases all terminated favorably but presented various difficulties in the performance of the intubation. Notably, in one, the necessity to intubate with the patient in a recumbent or semi-recumbent posture in bed, to accomplish which the best position was with the patient on the right edge of the bed and the operator standing to the patients right in which location one's right arm rises in front of the patient's mouth without awkward twisting of the operator's body. In another, at one time, firm span of the glottis, which was actually seen in the laryngeal

*Paper read before the American Laryngological Association at Pittsburgh May 14th. 1896.

mirror to occur, rendered a third effort necessary before the tube slipped into place. It was done under laryngoscopic view by holding the tube firmly at the entrance for a few moments which excited cough and with it the opening of the glottis. All the cases showed some intolerance to the presence of the tube as manifested by more frequent expulsion than with children. One case nearly succumbed from accumulation of viscid mucus, not in the tube, but in the trachea and larger bronchi below and around the tube which condition was at once suspended by the extraction of the tube.

The case of acute oedema of the larynx was complicated by chronic spasm of the masseter muscles which prevented wide distension of the jaws. In consequence, intubation failed, the patient being measurably exhausted by the two efforts made. Tracheotomy was performed but the patient died just as the operation was completed, presumably from failure of the heart in connection with secondary oedema of the lungs. Immediately, post mortem the diagnosis was confirmed and the feasibility of intubation demonstrated in acute oedema of the larynx with a patient recumbent, possibly collapsed, but uncomplicated by "setting" of the jaws, by (after death) forcibly distending the patient's jaws, when the tube could be passed and repassed with ease.

The liability to pressure decubitus by the tube in acute oedema of the larynx should be remembered and not too large a tube inserted.

The other case which was presumably one of oedema of the larynx or of sub-glottic oedema terminated favorably and without difficulty.

The following conclusions as to technique are formulated.

1. For one accustomed to the use of the laryngoscope intubation on adults is easier and more certain under its guidance therefore for a patient of adequate composure and able to maintain the sitting posture this method should be selected.

2. A patient lacking only composure one whose inclination is to resist rather than to assist the operator, may be closely wrapped in a blanket to pinion the arms and legs, seated in a straight-back chair, the head inclined slightly backward, the mouth gagged and the finger used as a guide, as with children.

3. A patient lacking strength to move from bed and composure or strength for laryngoscopic insertion, should be placed close to the right edge of the bed so that the operator can stand to the patient's right side, the head and shoulders should be well raised by pillows, the neck moderately extended and the method

by the sense of touch otherwise fulfilled. Kneeling on the bed in front of the patient is unnecessary.

4. A patient who is moribund or nearly so, may have the tube inserted while in the recumbent position. He should be placed on the right edge of the bed and the operator should therefore stand to the patient's right.

Spraying the fauces with a five per centum. solution of cocaine facilitates introduction by whatever method and tends to lessen the liability to premature expulsion.

The extraction of the tube is especially easy under laryngoscopic illumination, otherwise it is done in accordance with the same principles as regards the position of the patient, as pertain to its introduction.

The author's posture method of feeding subsequent to intubation, by inclining the patient's head and shoulders downward, in which position fluids may be swollowed without gravitating through the tube into the lungs, can be successfully used with adults, but naturally with more difficulty at first than with children, on account of unmanageable weight and size. It is best done by hanging the head and shoulders over the edge of the bed downward, nearly to the floor. Otherwise, adults more readily than children, may be fed upon semi-solids as custards, stiff corn starch and oysters, which will slide over the top of the tube without entering it.

Regarding the scope of intubation for acute stenosis in adults, the four cases of laryngeal diphtheria herewith reported, all of which terminated favorably justify the conclusion that this operation may with advantage be substituted for tracheotomy in that disease.

Concerning acute oedema of the larynx one's position is not so clear. The operation is technically feasible in uncomplicated cases even when exhaustion is extreme and I would consider a single attempt justifiable provided, in order to guard against pressure decubitus, the smallest size of the adult's set of tubes is first selected.

When complicated by having the jaws "set" or by pharyngeal swellings which might obstruct the top of the tube, either or both of which conditions may be encountered in cases of acute oedema of the larynx, secondary to peritonsillar abscess, Ludwig's angina, phlegmonous angina, retro-pharyngeal abscess, etc., intubation is absolutely contra-indicated and fruitless efforts thereat can only serve to intensify the exhaustion and suffering of the patient.

There are other acute conditions or acute exacerbation of chronic states which might be remedied by intubation. In a case of arthritis deformans, which suffered an acute exacerbation involving the larynx, the dyspnoea was so urgent that I expected to be compelled to intubate at any moment for several days.

Traumatic oedema of the larynx as by scald, corrosion or fracture, might in suitable cases be treated in this way.

Laryngismus stridulus or reflex spasm of the glottis though rare in adults, might constitute another indication.

Also oedema of the larynx secondary to chronic syphilis or tuberculosis might come within the same category since the oedema may figure as an acute exacerbation provoking sudden and urgent dyspnoea.

The treatment of chronic stenosis of the larynx and trachea by intubation is not included within the scope of this paper.

"THE FADS AND FASHIONS OF SURGERY" ANSWERED.

G. MELVILLE BLACK, M. D.,
OF DENVER.

Since Dr. S. O. Richey, of Washington D. C., has seen fit to publish a paper in the last issue of this Journal, which he read before the Medical Society of the District of Columbia, I presume it was to call forth further discussion upon the position he had taken. To excuse myself for taking up the pen in answer to Dr. Richey, I will quote a passage from his paper. "To condemn a measure, until its devisors and advocates have had a fair hearing, or until its effect as compared with other means, has been shown by experience, is unwise. But usually there is the other side which should be heard *sometime*, especially in the face of a growing reluctance to such constant cutting." Dr. Richey has tried to show that a great deal of unnecessary surgical work is being done on the eye, ear, nose and throat, and that "intelligent laymen are learning to sneer" at the unwarranted and at times, I would infer from the tone of his article, harmful procedures. There is such a thing as being too conservative. Nature will do a great deal towards removing abnormal conditions in her economy, but we can not expect her to accomplish miracles. The Essayist seems to oppose the use of the knife in almost every condition which requires that tissue be removed to render the part one that is not a constant source of annoyance or danger to the patient. He however advises that the tissue be removed by other means, *i. e.*, absorption. He informs us that the faucial tonsils, and adenoid tissue in the pharyngeal vault, should not be removed except in cases of emergency; but does not tell us what the

emergency periods are. Is it possible that we are to wait until our patient has developed diphtheria, scarlet fever or an acute inflammation of the middle ear, before we are justified in removing this mass of offending lymphatic tissue? He would have us wait until the age of puberty removes this tissue by supplanting it with fibrous tissue, which is worse than the lymphatic tissue, or he would cause its absorption by local applications, or injections of pure hydrochloric acid, by the method of Dr. H. W. Kendall, of Quincy Ill. I am afraid that Dr. Richey has never tried this method on children, and his experience must have taught him that it is a very difficult matter to get a good view of a child's tonsils, to say nothing of trying to stick into them a pointed glass tube carrying pure hydrochloric acid. I have tried it, and I know that I can not do it in one child out of ten. Even were it possible to accomplish it, I can not see where we gain anything over excision. Wherever the acid touches the tissues it destroys them, and whatever decrease there is in the size of the part, is from the resulting contraction. We are also informed in regard to adenoids in the pharyngeal vault that "Their removal by operation will not cure the vice that causes them, but may result in immediate and deplorable ear trouble, and not infrequently in subsequent changes in the pharyngeal space, which becomes abnormally large after the age of puberty, and filled with hard nodules which collect and retain the secretions." I can not subscribe to any one of the writer's statements. My experience in the removal of adenoids has been moderately large, and I have yet to see a single case of ear trouble caused by their removal. On the contrary, I have operated to benefit ear trouble very frequently, and always with success. If the growths were allowed to remain, and undergo replacement, after puberty, with connective tissue, we would have the "hard nodules" which would certainly collect and retain the secretions. Of this we have abundant proof, as we frequently see subjects in adult life who have just this condition to contend with from neglected adenoids of childhood.

I do not believe many men are being carried away by "fads", nor that the jeers of the rest of the world are to be aimed at us because we find it more rational to use the

knife occasionally, than to depend upon slow and tedious methods to accomplish an inferior result, with much more suffering and danger to the patient; nor do I believe that we are justified in waiting until the patient is in some deplorable condition before resorting to operative interference. Why is it not better to place him out of harm's way if possible? And experience has shown me that it is possible.

In regard to excision of the drum membrane and ossicles Dr. Richey says, "it is a radical measure, justified by a suppurative process whose focus can not be more simply reached" and that "the enthusiasm of its advocates has betrayed them into performing it in cases of sclerotic otitis, to which I have demurred from its inauguration." I think no one would think of performing such an operation upon an ear in a suppurating condition, until every other means had been given a fair and lengthy trial. I believe that few would be so foolish as to think of it, and these few we do not need to consider. The removal of the drum head and ossicles in sclerosis, in my opinion, is justifiable in cases where the progress of the disease resists all treatment, and deafness together with the tinnitus become such prominent features, that any means of arresting their progress with comparatively little risk, should be adopted. I have performed this operation in advanced cases of sclerosis ten times, and each case has been slightly benefited in hearing. Five of the cases, although complaining no longer of tinnitus, admitted when questioned that it still existed to a slight extent. The other five had some tinnitus to complain of, but acknowledged that it was less in amount than before the operation. I have never felt that I was justified in performing this operation until all other means had been tried. These having failed, and the deafness being excessive, *i. e.*, voice heard at one foot, I have then explained to the patient that there was one way left of possibly improving his hearing, or at least saving to him what he had. So far one or the other of my predictions has come true. I have never had any further trouble with these cases, no subsequent suppuration or other annoying sequelæ. The operation has not always been a success in suppura-

tive otitis. When the suppuration continued, it became necessary to open the diseased mastoid in order to effectually eradicate the disease.

I was not aware that "*artificial ripening*" was a "fad" or a "fashion" of ophthalmic surgery, nor do I believe that it is. I quite agree with Dr. Richey that, "lens opacities pursue such an erratic course that *artificial ripening* should be resorted to with hesitation and care, and in selected cases." The kind of opacities that run an "erratic course" are the striated opacities situated in the superficial layers of the lens. He would certainly be a bold operator who would resort to artificial ripening in such forms of cataract, but in the nuclear opacities where vision is very much reduced except when the pupil is dilated, and when the surrounding cortical portion is very slow in becoming opaque, and where both eyes of the patient are in the same condition, we are justified in doing something to hasten the opacity of the lens. "*Graduated Tenotomy*" I must confess has been badly overdone by a few members of the profession. The fact that good things are frequently abused should be placed rather to the credit of the procedure than against it. I do not believe tenotomy for muscular insufficiency to be a "fad," but an operation that is occasionally required, after the refraction has been corrected, the general physical condition of the patient looked after, and the muscles exercised. Then and not before is a tenotomy in order. On the other hand, if the amount of heterophoria is so enormously large as to be beyond all help from prisms, it is advisable to resort to an operation at once. Dr. Richey practically admits that at times the operation is justifiable, and is of benefit to the patient, yet he at the same time so thoroughly denounces it, that such statements as his in regard to it tend to prejudice the mind of the general practitioner against it, and when a case comes to us that really should have the benefit of such an operation, we find we are opposed by the physician who referred the patient to us. Why? Probably because he is somewhat of a pessimist himself and in consequence naturally leans towards pessimistic views.

In regard to Dr. Richey's method of applying cocaine

and then a solution of silver nitrate to the "superior straight" to reduce hypertrophy and engorgement of the turbinated bodies, I have but little to say, as I have never tried it, in fact for the first time heard of it, but I hope to give it a trial, and later on may have something to say about it.

I very much doubt if the intelligent men of the country are being led astray by "fads" or "fashion". On the contrary, I am inclined to think that the average man does some little thinking for himself. While he may try many things which he from time to time reads about, his experience and his sound judgment aid him in selecting the good from the bad.

ABSTRACTS FROM CURRENT RHINOLOGIC AND LARYNGOLOGIC LITERATURE.

By W. Scheppegrell, A. M., M. D.,
of New Orleans, La.

Vice-President of the American Laryngological, Rhinological and Otological Society, etc.

ORAL CAVITY.

Surgical Treatment of Hare-lip and Cleft Palate in Children

Dr. D. H. Goodwillie (American Medico-Surgical Bulletin, No. 18, 1896) gives an interesting detailed description of the operations for correcting hare-lip and cleft palate. The article is well illustrated with wood cuts, and should be read in the original.

In concluding, the author calls attention to the necessity of correcting these oro-facial deformities not later than the third year. The bone and lip should be operated in the first or second month of extra-uterine life; then follows the proper time for the palate operation.

Xerostomia (Dry Mouth) With the report of a Case.

Dr. David Riesman (Philadelphia Polyclinic, No. 10, 1896) describes a case of xerostomia, a name given by Jonathan Hutchinson several years ago to a peculiar condition of dryness of the mouth due to the suppression of salivary secretion. No explanation could be found of the symptom, and the treatment proved ineffectual.

In the case described by Hutchinson, a woman, aged 50 years, had suffered for four years from dryness which involved the tongue, mouth, lips, cheek and pharynx, but did not interfere with the digestion, an evidence, according to Hutchinson, that the salivary secretion is not essential to digestion. Speech and

deglutition were rendered difficult by the dryness; the perspiration was unaffected.

In a case reported by Fraser, the dryness affected not only the mouth, but also the nostrils and eyes; dryness of the skin was also occasionally present. Drugs (including pilocarpin) proved of no benefit.

Papillomata of the Soft Palate.

Dr. W. Scheppegrell (New York Med. Journal, April 11, 1896) describes the case of a young man, who consulted him for an affection of the ear, in whose throat was found a tumor (papilloma), 9 mm. in diameter, attached to the soft palate near the uvula by means of a pedicle 15 mm. in length. In spite of the latitude of motion allowed the tumor on account of the length of the pedicle, the patient had not felt any inconvenience from it, and was not aware of its existence.

In another case, a much smaller papilloma of the soft palate gave rise to paroxysms of coughing, which disappeared when the tumor was removed.

Carcinoma of the Tongue.

Dr. Carl Beck (The Clinical Recorder, Feb., 1896) states that if there is an ulcer of the tongue, which may be due to a carious tooth, the tooth should be removed without delay. If, under antiseptic washes, the ulcer does not heal quickly, there is grave suspicion of malignancy. As carcinomatous ulceration may easily be confounded with tubercular or syphilitic ones, an early microscopic examination is imperative.

It will not be advisable, in doubtful cases, to wait until by the administration of mixed treatment, we determine the presence or absence of syphilis. A tubercular ulcer is easily distinguished by means of the microscope or bacteriological test.

In view of the fact that even benign growths of the tongue, from their tendency to become malignant, demand early extirpation, even in cases where no microscopic examination has been made.

One of the obstacles to extirpation is hemorrhage, but by means of a prophylactic suture devised by the author, hemorrhage is reduced to a minimum. In this method, an Emmet's blunt needle, armed with strong silk, is introduced beyond the part to be excised, and returned, so that, when the ends are tied, the suture will include the principle blood supply. At first, the thread is allowed to hang down like a sling, so that it cannot interfere with the incisions.

An assistant seizes both sides of the tongue, while the operator cuts out the growth with strong scissors. The edges are now quickly brought together and the ligature tightened, thus immediately checking the hemorrhage without the ligation of an artery. After this, it is very easy to do whatever trimming is necessary, and to apply the sutures.

Chancres of the Tonsil and Tongue, With Report of 4 Cases

Dr. T. C. Evans (Medical News, No. 19, 1896) believes that the difficulty of diagnosing chancres of buccal region has been over-estimated. As all ulcerative lesions of the mucous membrane of the mouth and pharynx are almost certainly malignant, tubercular or syphilitic, a diagnosis may be arrived at by exclusion.

Carcinoma may be excluded by the fact that the pain, the enlargement of the tonsil and the glandular involvement all precede the ulcerative process by 2 or 3 months. The greatest difficulty in the diagnosis of chancres of this region lies in its differentiation from the ulceration of the secondary and tertiary stages of syphilis. Chancres of the tonsils present the ordinary characteristics of the primary lesion in general, except the involvement of a larger surface, and the induration is usually not so well marked. The ulcers are sluggish and covered with a grayish-white exudate. The involvement of the cervical and submaxillary glands is marked, constant and characteristic.

The author then describes two cases of chancre of the tonsil and two of the tongue, the diagnoses of which were corroborated by the appearance of the secondary eruption.

Tuberculosis of the Tongue.

Dr. P. Auguy (These de Paris, Internat. Centralblatt f. Laryngologie, No. 5, 1896), describes the various forms of tuberculosis of the tongue; ulcerative, which, at first, is superficial, but later on becomes more or less deep and spread out; the gummatous, which is located in the depths of the tissues of the tongue, and finally finds its way to the surface through suppurative processes, and third, the somewhat rare occurrence of lupus.

According to the author, the most frequent form of infection, even in the ulcerative form, is the entrance of the bacillus into the circulation.

A Case of Angina Ludovici.

Dr. H. Ripault (Annales des Maladies de l'Oreille, No. 9,

1895), reports a case of Angina Ludovici in which, shortly after opening the suppurative focus per os, a severe suffocative attack developed which necessitated immediate tracheotomy. It was then recognized that there was a second abscess which was separated from the first by a thin septum; this had been the cause of the suffocative attack and of the difficulty in swallowing. The case was complicated with an immense hypertrophy of the tongue and with trismus which continued for over 7 weeks.

NASAL CAVITIES.

A Suggestion as to the Causation of Nasal Catarrh.

Dr. Henry J. Mulford (American Medico-Surgical Bulletin, Mar. 7, 1896), believes that chronic nasal catarrh has its origin because of a diathesis, of which the catarrh is an expression. The normal person may have an acute rhinitis occasionally, but this does not assume the chronic form unless there is a diathesis. It does not matter if he lives in a "catarrhal" region or not; he is safe in any climate if his nutrition is perfect.

The diathesis probably exists on account of some fault in the process of internal nutrition. When this is the case, the blood is not sufficiently alkaline to carry on its normal oxidizing process. As the alkalinity is reduced, there appear in the venous blood products of the suboxidation. These are usually eliminated by the kidneys, but if, for any reason, the kidneys act imperfectly, the venous fluid becomes more and more an irritant.

The erectile tissues of the nose, soaked in venous blood, are the ideal location in which the irritation finds an expression, and the delicate structure of its uppermost layer endeavours to throw out the irritating material. This is the beginning of nasal catarrh, which tends to keep up as long as the source of irritation continues to exist.

The Etiology of Nasal Obstruction.

Dr. Mayo Collier, in opening the discussion on the Etiology of Nasal Obstruction at the meeting of the British Laryngological, Rhinological and Otological Association, Jan., 1896, first called attention to the great frequency of some marked irregularity of the nasal septum, 3 out of 4 cases showing some deviaton (Journal of Laryngology, Mar. 1896).

The theory of the speaker is that temporary nasal obstruction, from whatever cause, tends to grow into and produce chronic nasal obstruction. Even a coryza may, in this way, be the first stage of a chronic obstruction. When a nostril is thus obstructed,

there is a diminution of atmospheric pressure within the nostril, and a corresponding increase of pressure from the outside. Hence, not only is the septum pressed inward, but this pressure is also on every side of the nasal fossa; hence the pinched and approximated upper maxillary bones; hence the high arched palate and lessened pharyngeal and post-nasal space.

There are other causes of chronic nasal obstruction, such as sleeping habitually on one side, habitually blowing the nose with the same hand, etc., but traumatism, next to catarrhs and engorgement of the erectile tissues of the nasal respiratory tract, is by far the most potent cause of obstruction in young people.

(The high arched palate, contracted upper maxillary bones and pinched nostrils, form the characteristic adenoidean face; in these cases, however, the obstruction is in the naso-pharynx, and the diminished atmospheric pressure is not in the nostril, but in the pharynx. Hence this theory will not explain these cases, in which the symptoms are most characteristic. The older theory of retarded development from diminished or loss of function, and the pressure of the muscles of the face of the habitual mouth-breather, offers a much more satisfactory solution in these cases.—W. S.)

Cases of Disease of the Nose and Ears Treated by Means of Oxygen Gas.

Dr. George Stoker, at the Jan. 1896 meeting of the British Laryngological, Rhinological and Otological Association reported a case each of ozena, syphilitic ozena and chronic purulent otitis media, in which he has had good results with the oxygen treatment—[Journal of Laryngology, Mar. 1896.]

His method is to fill a bag, which holds a cubic foot of oxygen; the bag is placed between boards for the purpose of obtaining pressure, and there is a tube with a tap (which empties the bag) which has an india-rubber nose piece, through which the oxygen is inhaled. The oxygen was applied every second hour during the day, a longer application being found to induce headaches.

In each of the three cases reported, there was marked fetor which disappeared a few days after the commencement of the treatment. At the time of the report, there was marked improvement in each of the cases, and the reporter advocated further trial of the method.

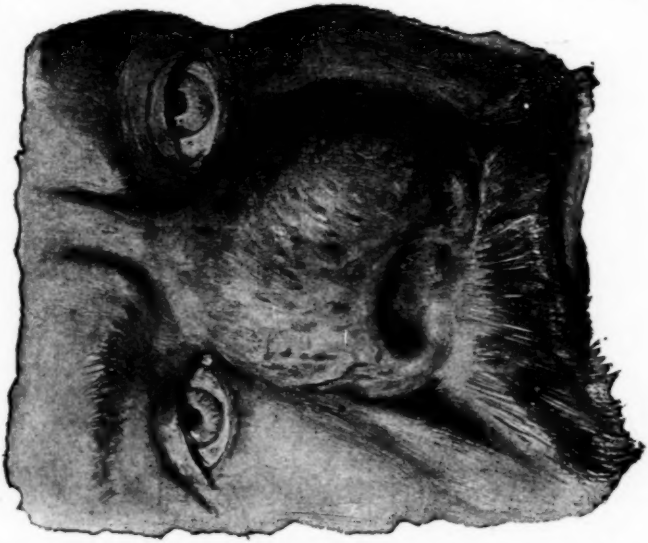
Rhinoscleroma.

Dr. W. Freudenthal (N. Y. Medical Journal, Feb. 1, 1896) reports a case of rhinoscleroma. Hebra, who first described this

disease, based the diagnosis of 9 cases which he had seen, upon the following eight facts:

1. Localization constantly in the nose.
2. Extraordinary hardness of the affected parts (like ivory).
3. Very slow development.
4. Sharp contours; absence of oedema or other inflammatory symptoms.
5. Absence of any visible metamorphosis of the neoplasm.
6. Ineffectiveness of any treatment.
7. Absence of danger to the general system.
8. Absence of pain when the diseased parts are not touched.

The view however, expressed by Hebra in his original article, has since been modified. It was proved very soon not only that the pharynx and larynx became affected quite frequently,



but that these organs sometimes were attacked before any affection of the nasal cavity was to be seen. The trachea also, according to von Schrotter and others, is the seat of this affection quite as frequently as the larynx.

Rhinoscleroma is a disease almost unknown in America, only three cases having been reported up to two years ago. Most of the cases described were in Austria and Russia.

Dr. Freudenthal reports the following case:

Israel Scher, born in Galicia, is 45 years of age and a tailor by occupation. About 12 years ago a mass began to show itself on the right side of the upper part of the nose. Five years ago this little tumor began to grow more rapidly, and in a year reached its present dimensions. About the same time he found he could not breathe through his nose. The throat also began to close up, and tracheotomy had to be performed. The canula was removed 16 days later, but a year later had to be reinserted on account of renewed difficulty in breathing.

The man is tall, pale, emaciated and poorly nourished, and the immense size of his nose is very striking. The right side shows a thickening the size of a hen's egg. The tip is very much thickened and enlarged. The color of the nose is bluish red and a few blood vessels are seen traversing the keloid-like mass, whose epidermis is smooth. To the touch it feels hard like ivory.

The large swelling seen on the outside of the nose occupies apparently the whole mass of the right inferior turbinal, and the septum is so much pushed towards the left side, that breathing is almost impossible.

The lips and mouth are normal, but in the pharynx, the cicatrical condition suggests syphilis. Iodid of potash, however, aggravated the condition. The finding of the bacillus of rhinoscleroma rendered the diagnosis certain.

Injections of rhinosclerine, which has given good results in the hands of Prof. Pawlowsky, was refused by the patient.

Abnormal Nasal Secretion; its Injurious Effects.

Dr. Thos. F. Rumbold (St. Louis Med. & Surg. Journal. No. 5, 1896) states that abnormal nasal secretion is not only injurious to the nasal passages, but also produces injurious effects on distant organs. The saliva may be vitiated by this secretion, and the writer has convinced himself of this by injecting the saliva of a person suffering with coryza into a rabbit, the animal dying of pneumonia. The injection of saliva from healthy persons produced no adverse effects.

In childhood, the secretion frequently takes on an especially acrid quality, and the irritation due to this secretion may cause the hypertrophy of the lymphoid tissues in the naso-pharynx, so frequent at this age.

In youth, the effects of this secretion is to cause swelling of the nasal mucosa, which results in partial air exhaustion which, by increasing the blood supply of the parts, tends to produce local hypertrophy which is so frequently met with in adult life.

The stomach is frequently affected by the abnormal nasal and

naso-pharyngeal secretion, as many persons, either consciously or otherwise, draw the secretion into the throat and swallow it. This habit, kept up for a long period, cannot but have an adverse effect on the function of digestion.

The Etiology, Symptoms and Treatment of Rhinoliths, With the Report of a Case.

Dr. W. Scheppegrell (Journal of the American Medical Association, May 2, 1896) reports a case of rhinoliths, in which the patient was treated for malarial fever for over a year on account of the accompanying elevation of temperature. An examination showed that the child had a large calcareous mass in the right nostril. The stone had to be broken before it could be removed from the nostril, and the nucleus was found to be a blood clot, the composition of which was distinctly shown in a spectroscopic examination

The writer concludes that the rhinolith had developed about three years previously; the blood-clot, from some unexplained reason, having been surrounded by a precipitate of calcareous matter from the nasal secretion. The stone had gradually increased in size until it had deflected the septum into the left nostril, thus causing marked stenosis of both nostrils. The right nostril had been atrophied from the pressure of the rhinolith and from the irritation of the fetid secretions surrounding it. In the efforts to clear this nostril of its contents, the nasal mucosa had been lacerated by the sharp edges of the stone, giving rise to the absorption of septic material, and fever and headaches as the result.

Case of Larvae in the Nose.

Dr. J. W. Bond (The Journal of Laryngology, No. 5, 1896), reports the case of a patient who had had a profuse watery discharge from the nose for three weeks, and sharp shooting pains in the left frontal region. On examination of the nose, the passages were found patulous with a slight degree of atrophy. For about six weeks various nose lotions were used without good results. Then, after using a dilute Mandl solution twice, four grubs came from the nose, and the patient was relieved.

The grubs were found to be larvae of a fly (Piophila casei). There was no peculiar smell noticed likely to attract the fly. The case seems to have been very readily cured, no doubt because the accessory cavities were not involved.

A Case of Rhinitis Caseosa.

Dr. Klingel (Arch. f. Laryngologie. u. Rhinol. Bd. III. Heft. 1) describes a case in which a fetid cheesy secretion was collected between the enlarged left inferior turbinal and the lateral wall of the nose. One syringing with lukewarm water effected a cure. The author does not believe that the affection was of specific origin, but suggests that it was simply a case of acute coryza, in which the muco-purulent had remained in the nostril and had decomposed.

Rhinitis Sicca Anterior.

Dr. Siebenmann (Muenchner medicin. Wochenschrift, No. 44, 1895), claims that rhinitis sicca of the mucous membrane of the vestibule is of comparatively frequent occurrence, amounting in fact to 10 per cent. of all diseases of the nose. At first the mucous membrane appears of a red-brown color, on examining it with a probe, it is often found glutinous and sometimes dry and as if varnished; it is the picture of the Xanthosis of Zuckerkandl.

In the later stages, the mucous membrane becomes grayish in color, and scabs and crusts are developed, which the patient attempts to remove by picking, which leads to recurrent hemorrhages; the mucous membrane becomes more and more epidermic in character, until it finally has a tendinous appearance. From the continued picking with the finger, the septum become gradually thinned until perforation takes place; or it may be instrumental in causing erysipelas, lupus or tuberculosis, and even rhinitis fibrinosa may be due to this condition.

The treatment of rhinitis sicca consists in the application of ointments which will soften the secretions and gently stimulate the mucous membrane; the vibrissae, if too long, should be cut back, and permanganate of potash should be applied to the bleeding points by means of a moistened cotton applicator.

ACCESSORY NASAL CAVITIES.

Moll's Treatment of Acute Diseases of the Accessory Cavities of the Nose by Respiratory Aspiration.

Dr. Dundas Grant (The Journal of Laryngology, June, 1896) calls attention to the method described by Dr. Moll, of Arnheim, of relieving and even curing the affections above described. In a few words, it consists in aspiration of the contents of these cavities by means of a forcible inspiration while the nose and mouth are firmly closed. In this way, no air can be drawn into

the chest, and there is a considerable lowering of pressure on the contents of these cavities. The fluid in them is thus drawn out to a greater or less extent, as was proved in Dr. Moll's cases by the appearance of pus in the nasal cavities, although it had been completely removed before the carrying out of the method. Furthermore, in a case in which an alveolar puncture had been already made, a manometer indicated the fall to the extent of 15 mm. of mercury during the forced inspiration. In a very illustrative case, a patient carried out the process every 2 hours, and in a few days was perfectly well. Dr. Moll relieved himself of such an affection in this matter, and necessity was possibly the mother of invention, and the relief which he himself experienced has doubtless been the cause of his discovering a method which appeals to common sense, and which recommends itself on account of its simplicity.

(The anatomical conditions of the accessory cavities are too different to speak of the effects of this treatment in any generalizing manner. The effects, for instance, of the decreased atmospheric pressure in the nasal passages on the antrum and frontal sinus in a case in which these cavities are partly filled with secretion, would be quite opposite. In the antrum, in which the opening is situated in the upper part of the cavity, the atmospheric pressure would be decreased, but in the frontal sinus, in which the opening is at the bottom of the cavity, the atmospheric pressure over the liquid, would be relatively increased. In the latter case, however, the greater pressure on the liquid might drive some of the secretion into the nasal passage, but that this can be the case in the antrum is extremely doubtful. No one imagines that an air-pump connected with the mouth of a bottle half full of water could cause the water to flow up and out of the bottle. There would naturally be a decrease of air-pressure on the water, but the liquid would not change its position unless there were at the same time a counter-opening below the water, and even then the air through the opening would be drawn up and not the water.

Another objection to Moll's method is due to the fact that the cause of many cases of acute disease of the accessory cavities is the congestion in the nasal chambers, which tends to obstruct the openings of the cavities into the nose. Forced inspiration with the nose and mouth closed would naturally increase this congestion and may really aggravate the existing conditions. The writer has usually given relief in quite the opposite manner, that is by the application of medicaments which relieve this congestion and thus give free exit to the pent-up secretions within

the sinuses. That acute diseases of the accessory cavities should have recovered in spite of forced aspiration is no proof of its efficacy.—Scheppegrell.)

Notes on Four Cases Empyema of the Frontal Sinus.

Dr. W. Camac Wilkerson (Australasian Med. Gazette, No. 1, 1896) reports four cases of empyema of the frontal sinus. The first was an acute case of unusual origin. A boy of 7 years had suffered for several years from suppurative disease of the middle ear. As adenoids were found in the naso-pharynx, these were removed with marked benefit to the aural disease. A few days after the operation, the child developed pain and marked swelling over the left eye, great tenderness on pressure, and a temperature of 103 degrees. The frontal sinus was opened by the external operation, and 2 drams of pus was removed. The child then made a rapid recovery.

In the second case, the empyema of the frontal sinus was associated with a purulent condition of the maxillary sinus, and extensive necrosis of the ethmoidal bone. In the third case, the disease was secondary (?) to nasal polypi, and in the fourth case the diagnosis had not yet been confirmed.

Laryngeal Syphilis, with the Report of A Fatal Case.

Dr. A. M. Davis (Medical News, Jan. 18, 1896), reports a case of Laryngeal Syphilis in a corpulent woman, which terminated in death. The patient had the characteristic syphilitic eruption, and the tongue and mucous membrane of the cheeks were covered with mucous patches. During unusual exertion, there was distressing dyspnoea.

The patient was placed on "mixed treatment." Ten days later symptoms of ptyalism began to develop, and, at the same time, the laryngeal dyspnoea increased markedly. One month after admission, the patient was found cyanosed and unconscious, gasping for breath, and death resulting in a few minutes before tracheotomy could be performed.

At the autopsy, the circumvallate papillae were found to be enormously distended. The epiglottis and vault of the pharynx appeared normal. The thyroid cartilage, on the left side, was necrosed, the necrotic area being surrounded by a sloughing ulcer which filled up the entire space below the left cord. The tissues underlying the right and left cords were sensibly swollen. the mucous membrane of both cords being inflamed and infiltrated.

The Function of the Laryngeal Ventricles and Ventricular Bands.

Dr. Alex. Hodkinson (Journal of Laryngology, April, 1896), claims that (a) in man, whilst the laryngeal pouches supply their special secretion, the laryngeal ventricals themselves act as receptacles for dust and mucous cleared off the cords by their vibration, and which by its accumulation would otherwise interfere with phonation; (b) that the ventricular bands have a threefold function;—(1) they form the inner walls of the ventricals; (2) they assist in closing all but the posterior extremity of the upper aperture of the larynx during deglutition; (3) they aid in the removal of matter adhering to the vocal cords, both by friction and by their special arrangement whereby the fluid from the laryngeal pouches is compelled to pass over the whole length of the cords from front to back in its passage from the larynx to the gullet.

The practical deductions from the observations of the author are:

(a) Mucous corpuscles or leucocytes exercise a protecting function on the organism by their property of enveloping germs and particles of dust and so facilitating their removal from the body.

(b) The passage of mucous from the air passages along the posterior wall of the larynx to the gullet suggests a probable explanation of the frequency of secondary infection of this part in pulmonary tuberculosis.

(c) The observed passage of mucous, etc., from the ventricals downwards through the glottis into the air-passages proves that blood, pus, etc., coughed up from these passages may be of other than pulmonary origin.

(d) The clearing of the cords and ventricals by the ordinary act of deglutition helps to explain the clearing of the voice by eating, drinking, sucking lozenges, etc.

A Case of Tracheotomy.

Dr. Eeman reported before the meeting of the Societe Belge d'Otologie et de Laryngologie, a case of tracheotomy which was performed under unusual conditions (The Journal of Laryngology, No. 5, 1896). A man, aged 50, suffered from an attack of gout (his first) in both feet. As this was passing off there arose suddenly pain in the right side of the neck, and rapidly increasing dyspnoea. On examination, there was found phlebothrombosis of the right jugular, oedema of the right half of the larynx, extremely small glottic chinc, dyspnoea intense and

dangerous. Tracheotomy was rapidly performed. By means of mustard cataplasms, the gouty manifestations were recalled to the feet, and aloes pills were given.

At the time of the report, the patient was doing well, the phlebitis gradually disappearing; the prognosis however, must be very guarded on account of the danger of embolism.

Aphonia and Dysphonia As Symptoms of Laryngeal Disease

Dr. S. K. Merrick (Maryland Medical Journal, Mar. 7, 1896), warns against attaching too much importance to the diagnostic value of aphonia and dysphonia as symptoms of laryngeal disease, and advises the early use of the laryngoscope. In neglected subacute or chronic laryngitis, changes frequently take place—such as thickening of the cords, infiltration or swelling of the ventricular bands, or thickening of the inter-arytenoid fold—which will tax the skill of even the expert laryngologist.

In tubercular laryngitis, the dysphonia in the primary stage differs in no way from that attending upon chronic laryngitis, and even when the bacillus tuberculosis is found in the sputum, it does not prove the existence of a tubercular process in the larynx. The only time when the vocal impairment is of diagnostic value is in the later stages when the destructive process has advanced so far that treatment is of little benefit.

In syphilitic laryngitis, we encounter morbid changes in the laryngeal structures, most of which are attended with dysphonia and not a few with aphonia, but the symptoms only point to disease of the larynx; the nature of the process is in no way revealed.

In laryngeal neoplasms, the sypmtoms depend upon the location and size of the growth. Thus a growth on the vocal cords causes aphonia or hoarseness; the growth on the epiglottis produces dysphonia; and a large tumor, wherever situated, is liable to give rise to dyspnoea.

In malignant growths of the larynx, the vocal impairment grows progressively worse; it does not come to a standstill as is not infrequently the case in benign growths, but this symptom would not enable us to differentiate it from other conditions of the larynx.

In hysterical aphonia, the sudden loss of voice with other hysterical symptoms makes the diagnosis in some cases very certain, but not a few cases are associated with catarrhal affections which seriously complicate the diagnosis. Of motor neuroses such as abductor or abductor paralysis, the aphonia or

dysphonia in the latter is not characteristic, while in the former, the gravest of the laryngeal neuroses, the aphonia or dysphonia may be entirely absent. In paralysis of the arytenoideus or tensors, the experienced laryngologist rightly interprets the dysphonia, but they furnish little information without a laryngoscopic examination.

Vocal Defects Amongst School Board Teachers.

Dr. William Milligan (Journal of Laryngology, April, 1896) has found the pathological effects of teaching more frequently in women than in men, partly because women appear to suffer in this respect more often than male teachers, and partly also because in certain schools female teachers are the more numerous body and therefore come more frequently under observation.

The lesions found, the author classifies as follows:

(1) Subacute and chronic laryngeal catarrh affecting mainly the true vocal cords.

(2) Chronic catarrhal laryngitis, with subsequent paresis of certain laryngeal muscles.

(3) Chronic catarrhal laryngitis, with a varicose condition of the smaller vessels of the true cords.

(4) Chronic catarrhal laryngitis, with secondary pachydermic changes, local or generalized.

The cause of the frequency of these conditions is that girls frequently assume the role of teacher at an early age—13 to 16—before the vocal organs are in a position to stand any undue strain; the hours also are very long for the continued use of the voice; and frequently several classes are taught in the same class-room, requiring an undue strain of the voice.

Prophylaxis is of the greatest importance in these cases. Rest is often advisable, but the means of the teachers will rarely permit this to be carried out. Where there are nodes of the vocal cords of such a size as to enable one to use a crush forceps or a fine snare, no better method of treatment can be adopted. The cautery point is sometimes indicated, but should be used with caution in this locality.

Photography of Speech and its Practical Application.

Dr. Gutzmann, at the meeting of the Berliner Medizinische Gesellschaft (Dec. 18, 1896) read an article on the oral method of instructing deaf-mutes. The capacity of reading spoken words from the lips of the speaker is an excellent substitute for persons of defective hearing and deaf-mutes. This method has

long been recognized by those interested in the instruction of deaf-mutes, and it has been their aim to fix certain visible signs of speech, so as to lighten the difficult art of lip-reading. Already, in 1892, the author has published in the Monatschrift f. Sprachkunde, a paper on the "External Physiology of Speech," which had the approval of the profession. Now, however, he has brought photography to his assistance, to give the objective proof of the correctness of his observations. Marey, of Paris, has arranged a series of these photographs in a stroboscopic apparatus, and deaf-mutes who were good lip-readers, had no difficulty in recognizing the words.

The objection to this method however, was that, as each word required a separate series of photographs, it would require a lexicon to include them all. To obviate this, the author had attempted to establish a series of facial positions required in speech (both en face and en profile) so that using these as types and placing them in a stroboscope, any desired word could be compounded. He had already succeeded in establishing a number of types in his series of photographs, and when certain combinations have been placed in the apparatus those skilled in lip-reading have no difficulty in recognizing the words.

UPPER AIR AND FOOD PASSAGES.

Foreign Bodies in the Upper Air and Food Passages.

Dr. Charters Symonds, in opening the discussion of this subject before the Laryngological Society of London (Journal of Laryngology, No. 4, 1896) stated that in the nose the most characteristic symptom was a unilateral purulent discharge, with more or less obstruction, the discharge often being blood-stained. He had found a probe and forceps the best instruments for removal.

In the pharynx, it is important to use the laryngeal mirror, and where the object cannot be seen with this, the finger should be used, this method being frequently the only one applicable in children. When the object is located, the forceps should be used, being guided either by the mirror or finger. The persistence of irritation after removal was referred to.

In the larynx, the foreign body may be small and which, after the first paroxysm, does not impede the respiration, but gives rise to local pain, cough, and some dysphagia but no danger; or it may be large, or, being small, so located as to impede respiration. In the first class, removal by intra-laryngeal methods may be safely undertaken, but in the second, it is of great importance to have everything ready for tracheotomy in the event of

a spasm being set up. If impacted in the glottis, it is better, after recovery from the tracheotomy, to attempt removal through the mouth before dividing the thyroid cartilage.

In the trachea and bronchi, the value of the paroxysmal cough was referred to; also the importance of knowing the nature of the foreign body. He warned against the quiet period being mistaken for complete recovery. The danger of inversion and succussion without previous tracheotomy was thought to be sufficient to exclude the method. That tracheotomy should always be performed when a foreign body is in the trachea or bronchus, was held to be a rule of surgery.

In the oesophagus, the main points dwelt upon were: the danger of over-manipulation causing fatal laceration; of driving the penetrating body into the aorta; the wisdom of pushing down forcibly impacted food rather than waiting a few hours for solution to take place. With regard to coins, an ordinary bougie should be avoided, and a bullet probang or the money-catcher used.

Accidental Suffocation While Swallowing A Piece of meat.

Dr. H. A. Lothrop (Boston Med. & Surg. Journal, No. 17, 1896) reports a case of accidental suffocation while swallowing a piece of meat.

A healthy laborer, 35 years of age, was quietly eating when his wife was startled by the sudden onset of severe symptoms of choking. The man was unable to utter any sound, began at once to become cyanosed, and threw himself about restlessly. All the accessory muscles of respiration were called into play, but were of no avail, and after a minute or more of convulsive efforts, the man fell to the floor exhausted.

The cyanosis became deeper and his veins more prominent, and at the end of 3 or 4 minutes all muscular action had ceased. During the interval, friends had endeavored to dislodge the obstructing mass by pounding him on the back, palpation about the neck anteriorly, and introducing the fingers into the mouth. The occlusion was complete from the outset, and continued so in spite of all efforts until death followed.

On the arrival of Dr. Lothrop, a piece of meat 3 cm. thick and 6 cm. long was removed from the lower part of the pharynx of the suffocated man, by means of a pair of tongue forceps. The meat had completely obstructed the entrance of the larynx.

(Dr. E. T. Shepard, of New Orleans, states that a similar accident from swallowing a piece of meat happened May, 1896, to

a young lad, an inmate of an orphan asylum of that city. W. S.)

Foreign Bodies in Upper Air and Food Passages.

In the discussion of this subject before the Laryngological Society of London, April 15th, 1896, Dr. Lambert Lack reports two interesting cases (Journal of Laryngology, No. 6, 1896).

In the first case, a middle aged woman gave the history that one night, three weeks before, she was awakened suddenly by a violent choking attack. She coughed violently, could neither speak nor swallow, but stated that her breathing was not obstructed; she vomited copiously and the attack subsided. She had a sore throat in the morning, and missed her tooth-plate, but concluded that it had been thrown away with the vomit. At the end of the week, the soreness of the throat had nearly vanished, but three weeks afterwards she complained of a pricking in the throat, which was increased by swallowing or turning the head suddenly. She could swallow without difficulty, and could speak easily but with a perceptible hoarseness, and there was a slight irritable cough.

On examination the tooth was seen resting on the right arytenoid and the plate extended obliquely across the larynx to the anterior part of the left ventricle, the left ventricular band, and the aryteno-epiglottic fold. The plate was removed with the ordinary Mackenzie forceps. The parts with which the plate had been in contact were superficially ulcerated and soon healed. The chief point of interest in this case is the slight subjective symptoms caused by such a large object.

In the second case, a male of 17 years was intubated for laryngeal obstruction, probably of traumatic origin. During a violent fit of coughing, the string broke, and the tube was sucked down into the larynx. Inversion and exploration through a laryngotomy wound failed to detect the tube, and it was assumed that he had swallowed it.

Two months afterwards, during a fit of coughing, something was felt to slip in his chest, and signs of occlusion of the left bronchus came on. This was followed by increased coughing and purulent expectoration, rapid wasting, and soon by the evidence of a bronchiectatic cavity at the left base. Dr. Lack resected 3 inches of the 6th rib, and 9 days later, opened a large abscess cavity, but the tube could not be found. The boy died a month later from hemorrhage.

At the post mortem, a No. 3 O'Dwyer's tube was found in the left bronchus, separated by a thin membrane from the pulmonary artery.

Dr. Lack also called the attention to the real danger of foreign bodies entering the windpipe during chloroformization. A case of adenoids under his care owes her life entirely to the fact that tracheotomy instruments were at hand during the operation.

The President, Dr. Felix Semon, summarized the most important points touched upon in the discussion, and instanced as such (1) the question of danger to the ear by forcible injection of water into the nose for the removal of foreign bodies from the nasal cavity; (2) the danger of pieces of adenoid vegetations penetrating into the lower air-passages when the operation was performed with the patient sitting up; he warmly advocated the position with pending head; (3) the deficient power of localization in the upper air passages; sensations, even when originating in the naso-pharyngeal cavity, frequently being referred to the laryngo-tracheal region; (4) the desirability of any digital exploration being preceded by careful inspection of the parts; (5) the persistence of sensation long after removal of the foreign body.

DIPHTHERIA, CORYZA ETC.

The Escape of the Diphtheria Bacillus into the Blood and Organs.

Drs. A. A. Kanthac and T. W. W. Stephens read a report before the Pathological Society of London (The Journal of Laryngology, No. 4, 1896) and recorded their observation on 18 fatal cases, in 13 of which there was marked broncho-pneumonia and in 14 laryngeal diphtheria. In all the 18 cases diphtheria bacilli were present in the lungs. They concluded that the broncho-pneumonia was frequently, if not generally, diphtheritic in nature.

In 12 instances the spleen was examined, and in 9 of them the bacilli were found, where the spleen was infected, the lungs in all cases contained the bacilli, and 75 per cent. were broncho-pneumonic.

An escape of the bacillus may take place (1) by direct transference from one part to another; (2) along existing passages—oesophagus, trachea, etc.; (3) along lymphatics, since the bacilli are frequently found in the cervical and bronchial glands; and, lastly, (4), by the blood stream to the spleen, liver, kidneys, etc.

The authors concluded that Dr. Sidney Martin's hypothesis regarding a process of intoxication from the seat of infection was hardly tenable, as toxine must be produced wherever the bacilli exist, and urged in consequence the energetic use of antitoxin in all serious cases.

Bicarbonate of Soda in the Treatment of a Common Cold.

Dr. L. Duncan Bulkley (Med. Record, Jan. 18, 1896) has had good results in the treatment of "colds" by bicarbonate of soda. He advises the following method;

20 or 30 grains of the bicarbonate of soda, and given in 2 or 3 ounces of water, every half hour, for three doses and a fourth dose at the expiration of an hour from the last one. Two to four hours are then allowed to elapse to see the effect, and the four doses are repeated if necessary. After waiting two to four hours more, the same course may be taken again, although this is not often necessary, if the treatment has been begun early in the course of the cold. This treatment is not efficacious in the advanced stages.

A Case of Urticaria with Involvement of the Air Passages.

Dr. Frank Woodbury (The Philadelphia Polyclinic, Feb. 15, 1896) reports a case of Urticaria Edematosa in a 9 year old boy, who was stung by a bee on the side of the neck. Shortly after being stung, the face of the patient became so swollen that his eyes were closed and the upper lip much disfigured and prominent. Breathing through the nose became impossible, on account of the swelling of the turbinated bodies. He had a laryngeal cough and speaking was difficult.

The front of the body, arms and legs were covered with the characteristic papules and wheals. The velum and fauces were tumid, but the tongue was not involved. Under the usual treatment for urticaria, the symptoms soon subsided.

On the Value of Cocainization of the Nasal Mucous Membrane Before and During Surgical Anaesthesia, with Report on One Hundred Cases.

Dr. A. G. Gerster, assisted by Drs. A. D. Mayer and C. Thevbald (Annals of Surgery, January, 1896) has used cocainization of the mucous membrane before and during surgical anaesthesia in one hundred cases and has come to the conclusion that, in view of the absence of apparent risk, and on account of the undeniable diminution of the trying subjective effects upon the patient, its extended and systematic trial deserves encouragement.

The special advantages claimed for this (Rosenberg's) method are:

1. As the patient's perception of the odor of the anaesthetic is much diminished, the feeling of suffocation is entirely absent.

2. The state of excitement is either short or entirely absent.
3. Vomiting during narcosis is rarer than usual.
4. Sickness during anaesthesia does not occur.

Rosenberg's directions for employing his method are as follows:

The patient is directed to blow his nose to free it from mucus, then 2 centigrammes of a ten per-cent. solution of cocaine are sprayed into each nostril. After a pause of two minutes, one centigramme of the solution is applied again to each side, and then the anaesthesia may begin. Every half hour the application of cocaine is to be renewed. Before removing the patient, the nose should receive a final spraying. In the case of alcoholics, this method does not seem to offer any marked advantages on the older methods.

Dr. Gerster notes that in ten cases certain symptoms (pallor, sweating, etc.,) appeared, which could be ascribed only to the effects of the cocaine. (If the toxic effects of this agent were seen in ten per-cent. of the cases in which cocainization of the nasal mucosa was tried, it can hardly be affirmed that there are no "apparent risks" in this method. This effect, however, could probably be avoided by diminishing the strength of the cocaine solution. W. S.)

THYROID GLAND.

Exothyropexia for Suffocative Goitre.

Dr. J. J. Buchanan (Pittsburg Medical Review, Jan., 1896) reports a case of suffocative goitre cured by exothyropexia. This operation introduced by M. Jaboulay, of Lyons, France, consists in exposing and drawing to the exterior, and retaining there, a part or the whole of a thyroid gland, affected by goitre, with the idea of producing atrophy of the hypertrophied tissue.

Usually a perpendicular incision is made, exposing the gland. The soft parts, including the perpendicular muscles, are then drawn apart on either side, and the enlarged gland is protruded through the opening, and allowed to remain on the outside, the soft parts being sutured to hold it there if necessary. The exposed gland is covered with iodoform gauze and thereafter treated as any other open aseptic wound.

In the case reported by the author the result was excellent. As soon as the gland was relieved from the pressure of the muscles, it was lifted at once from the trachea, and complete ease of breathing was the immediate result. There are no bad results following the operation which are so likely to result after the extirpation of the gland.

Exophthalmic Goitre Treated with Nuclein Solution.

Dr. John E. Bacon (The American Therapist, Dec., 1895) describes a case of exophthalmic goitre which was cured after the use of nuclein solution, after all the usual treatments suggested in the text books had failed to benefit the case.

A 16 year old girl, in whose family there had been several cases of ordinary goitre, developed Basedow's disease with all the characteristic symptoms.

After most of the ordinary methods of treatment had failed, nuclein solution in the form of tablets (each $\frac{1}{3}$ minim) was prescribed, of which the patient took at first three, and afterwards six daily. The benefit was very soon marked and continued. Dr. Bacon considers the cure complete, and thinks that it is due to the faithful course of treatment with the nuclein.

On the Nature and Treatment of Exophthalmic Goitre with Special Reference to the Thyroid Theory of the Disease and to the Treatment by Thyroidectomy.

Dr. M. Allen Starr (The Medical News, No. 16, 1896) advocates the theory that exophthalmic goitre is due to hyperactivity of the thyroid gland. He compares the essential symptoms of Basedow's disease and of myxedema, and shows that they present counterpart of each other, and that in each organ or function affected in both, the symptoms present in the one disease are exactly opposite to those present in the other.

The author believes that in severe and intractacable cases of exophthalmic goitre, in which the rest-cure and medicinal treatment have failed to relieve, the operation of the extirpation of the thyroid gland must be considered as justifiable. He formulates the following conclusions:

1. It seems probable that the symptoms of exophthalmic goitre are due to an excess of thyroid juice, either of normal or of abnormal character, circulating in the blood and acting directly upon the vasomotor and nervous systems and upon the muscles.

2. It seems probable that the best treatment of the disease is to arrest the secretion of the thyroid gland, or to remove the gland from the body.

(Would not the total extirpation of the gland develop cachexia strumipriva? A partial removal would meet the indications more effectually, according to the above theory. W. S.)

Diseases of the Accessory Nasal Sinuses, with Suggestions Regarding their Treatment.

Dr. Robert C. Myles (Medical News, No. 13, 1896) gives an

interesting report of his experience in the diagnosis of diseases of the accessory sinuses of the nose. In regard to transillumination as a means of diagnosis, the electric light is not infallible but invaluable to one who knows how to use it. In each suspected case, where the diagnosis cannot be made from an orificial discharge or other symptoms, or by transillumination, irrigation should be resorted to either through the normal opening with the syringe and curved tube, or with the trochar and canula, passed through the wall in the middle or inferior meatus.

Irrigation through the natural opening should be tried in nearly every case for a while, and be persisted in for a few months in those cases where the returned fluid contains decaying cheesy masses, and which show rapid improvement in the symptoms.

When the irrigating fluid returns on succeeding occasions laden with offensive pus, it is wisest to make an opening at once, 8 or 10 millimeters in diameter through the malar ridge where the tip of the first molar os is situated. In the event of the first molar tooth being in place, the canine fossa would be the next point of election.

Formerly he followed the method of extracting a tooth and drilling upwards through the socket, but the after history of such cases has caused him to regret it. The principal objectionable features are: the distance through the bone to the floor of the antrum; the dense, thick tissues of the gum; the difficulty experienced in curetting, the long wall of the opening preventing the proper play of the handle of the curette; the easy entrance of food into the antrum, etc. In his experience all the worst cases have done well when the operation was properly performed through the lower border of the malar ridge. The surgeon has complete subsequent control of the antrum, and can keep it open and curette it at any time without inconvenience to himself and with little pain or annoyance to the patient.

The canine fossa, where the bone is very thin, is the next point of preference; the main disadvantages are its distance up under the cheek and the elevation of the opening above the floor of the antrum. His experience in the cases where he penetrated through the wall of the meatus have not been so satisfactory as those reported by European writers.

In a letter to the editor of this department, Dr. Myles further explains his operation: "Of course, the malar ridge operation can be performed only in the absence of the first molar tooth, and the procedure is much easier if the tooth has been absent for some time. The only preliminary steps to be taken are as

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follows: Cocainization both locally and hyperdermatically, then make the incision at the junction of the gum and the buccal mucous membrane, baring the bone with a periostome; first pass a very small drill through the bone, on about a level with the floor, enlarge the opening, curette the cavity very carefully, taking special care not to pull off any floating mucous membrane. I usually pack the cavity with iodoform gauze, which remains in a few days; this is done more to control the hemorrhage, and to compress the congested mucosa. After this I usually insert bichloride cotton in the shape of a funnel, which extends within the antrum and to the mucous membrane of the mouth. This should be changed 2 or 3 times a day if necessary. When the wound contracts sufficiently, and has a tendency to do so too rapidly, I insert a soft, headed rubber tube; this is kept in for a few months usually, so that I can investigate the condition of the bone and mucous membrane."

PHARYNX.

Hot Water in the Treatment of Aural and Pharyngeal Inflammation.

Dr. C. W. Smith (Cleveland Medical Gazette, No. 4) has used hot water in the treatment of aural and pharyngeal inflammation with much success. When applied to inflamed surfaces, water at a temperature of 110 to 160 degrees F. has, at first, a slightly irritating or stimulating effect, but if continued in contact with the tissues, the action is soon followed by a decided anodyne or soothing effect. Tenderness of the surface is abated, a greater tolerance to pressure is secured, and pain is eliminated or greatly modified.

For throat application, a ball of cotton, as large as a hen's egg, is securely attached to an ordinary applicator, and the cotton dipped into water at a temperature of 150 degrees Fahr. After wiping off the flowing water, the heated cotton is plunged into the pharynx, where it is allowed to remain 15 or 30 seconds, when the process is repeated.

By the application, the blood supply of the pharynx, Eustachian tubes and middle ear is directly affetced. These applications should be made several times daily.

Retro-pharyngeal Abscess of Infancy and Childhood.

Dr. Henry Koplik in a paper before the New York Academy of Medicine, Section of Pediatrics, states that from an experience of 76 cases, he believes acute retro-pharyngeal abscess to be pre-eminently a disease of infancy (American Medico-Surgical

Bulletin, No. 14, 1896). It is most frequent from the 6th to the 12th month, and after the 2nd year of life it is quite uncommon.

The physical signs of acute retro-pharyngeal abscess are the only certain means of diagnosis, although, of course, the voice and cry undergo a marked change. Sometimes the head of the patient is thrown back, the infant refuses to nurse, breathes with difficulty, and awakens at times with a start. The symptoms may be mistaken for acute laryngeal disease, or acute paralysis of the fauces. If the fauces are inspected while the head of the infant is thrown back, there is a distinct prominence observed to one or the other side, due to the vetebra. The only accurate method of investigating is by digital examination, which should be done without violence, as this may produce great prostration.

The writer states that the danger of not incising retro-pharyngeal abscesses has been overdrawn, as they usually open and discharge through a minute opening. When, however, there is danger of asphyxia, the abscess should be promptly opened by a free longitudinal incision, subsequently enlarged by the forceps. The internal incision is ordinarily sufficient in these cases, and has been successful in the hands of the writer.

The Abortive Treatment of Quinsy.

Dr. R. H. Fox (Lancet, No. 6, 1896) claims that he has had good results from the application of cocaine 3 per cent. solution as an abortive treatment of true quinsy (peritonsillitis tending to suppuration). In a case which he reports, one thorough application was sufficient to abort an attack of quinsy in a patient who had suffered repeatedly from this affection.

LARYNX.

A Case of Malignant Disease of the Larynx at an Unusually Early Age.

Dr. P. McBride (The Medical Chronicle, No. 5, 1896) describes a case of an unmarried girl of 24, who complained of difficulty in swallowing, which had lasted for 5 months, and of pain, which had existed for 2½ months. The family history was good, and there was no evidence of pulmonary disease. For 3 weeks there had been a dry hard cough, but no bacilli were found in the expectoration.

The larynx appeared normal, but behind it was a tumor with granular yellow nodules. A microscopical examination of a piece that was removed from the tumor proved it to be an

epithelioma. The case was considered too late for operation, and the patient died a month later of exhaustion.

One Hundred Cases of Laryngeal Tuberculosis.

Dr. John H. Metzerott (American Medico-Surgical Bulletin, Feb. 22, 1896) claims that the statistics of the cure of laryngeal tuberculosis are not reliable on account of the inaccurate diagnosis of many of the cases which are reported as cured. One of Hajek's cases of laryngeal tuberculosis was evidently lupus of the larynx, and although pathologists are determined to class lupus with tuberculosis, still clinically it is certainly very different. If such a brilliant laryngologist as Dr. Hajek has made an error in diagnosis, how many erroneous reports have crept into statistics which the European laryngologists have been presenting to the medical fraternity?

Two cases, which went from clinic to clinic and were treated as tubercular on account of the anemic and swollen appearance of the tissues, which simulated tuberculosis in almost every respect, were proved to be decubitus laryngis. Three cases of rhinoscleroma were also treated for weeks as tubercular.

The curettement and lactic acid treatment is now much in vogue, but should be restricted to selected cases. Where polypoid, and papillomatous tubercular tissue interferes with breathing, this operation is justifiable, whatever the condition of the patient, for the removal of these growths greatly increases the comfort of the patient.

Of over 40 patients operated upon, whose physical condition appeared favorable for curettement, the author cannot say that a single case of the entire number was cured. The best results were obtained after the performance of tracheotomy, which were necessitated by the grave conditions existing within the larynx. The improvement in these cases was apparent from the very day upon which the tracheotomies were performed, although the patients eventually died from the process within the lung.

Although we have been able to effect cures in but very few cases, still the antiseptic treatment, which is directed against the formation of ulceration, has certainly delayed and prevented many a case of perichondritis, which gives rise to those terrible laryngeal and aural pains. In conclusion, the author advocates the mountain atmosphere, and the proper regulation of diet and exercise.

Two Cases of Tubercular Laryngitis Also two Cases of Malignant Diseases of the Tonsil.

NEWMAN: (*Glasgow Medical Journal*, April, 1896.) Two cases of tubercular laryngitis in which complete recovery took place; also two cases of maligant diseases of the tonsil treated bv operation and well more than four years there after.

Case I. Primary tuberculosis of the larynx; haemoptysis; tubercular sputa; dysphagia; cough; emaciation; anaemia. Secondary involvement of left lung; treatment by iodoform spray etc.; improvement followed by cure; well 6 years after.

Case II. Primary tuberculosis of larynx without ulceration; dyspnoea; dysphagia; cough; emaciation; anaemia; tubercular sputa; secondary implication of right lung; iodoform spray etc., recovery; well 8 years after.

The treatment: Concentrated nourishment. Patients were kept in a warm moist atmosphere impregnated with menthol, terebene, eucalyptus, locally spraying larynx with cocaine and then free spraying with concentrated solution of iodoform in equal parts of alcohol and ether twice daily later, three times daily. This was done at first by physician later, by a taught nurse. The applications were much complained of at first but well borne after a few days use. Newman says "to be efficient the iodoform treatment must be adopted before ulceration of the mucous membrane has set in".

Case III. Epithelioma of the left posterior pillar and the uvula; no involvement of lymphatic glands early diagnosis immediate and complete removal by operation (with the electric cautery;) no recurrence, five and one half years after the operation.

Case IV. Carcinoma of the tonsil and soft palate; early diagnosis by aid of microscope; immediate and complete excision (electric cautery); well four years after operation.

Excision of Half of the Larynx.

WOODS: Excision of half of the larynx (*Doublin Journal of Med. Science*, May, 1896.) Man aged 32. The tumor occupied right half of the larynx and presented externally through the ala of the thyroid cartilage, glands involved. Preliminary tracheotomy; right half of larynx raised and all the tissues from the great corm of the hyoid to the arytenoid, inclusive removed. Two chains of glands dissected out, a stomach tube tied

in and the cavity plugged with iodoform gauze. Tracheotomy tube removed on 3rd, day; on the 28th, day the patient swallowed. Recurrence in 4 months in a post-clavicular gland; attempted removal unsuccessful air entering the veins. Death from pneumonia shortly afterwards.

A CLINICAL STUDY OE THE CORRELATION BETWEEN THE IRIS AND THE PATELLAR TENDON REFLEX.*

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oculist and aurist to the Pottsville Hospital, oculist and aurist to the Childbens' Home,

—and—

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If it be suggested that our topic is one of little practical import, we can only plead our long continued interest in the associated anomalous behavior of two reflexes so far removed anatomically; and if it be further remarked that this paper is a purely hypothetic one, we would rejoin that with the means at present at command, it is the only method of approaching the subject.

In considering the correlation of these two reflexes, we shall study them mainly as seen in tabes dorsalis, feeling that if the hypothesis offered is acceptable for that disease, it will not be difficult to apply it to the explanation of their co-incidence in allied cerebro-spinal disorders.

That there is a certain relation between the behavior of the iridic and patellar reflex is one of the best demonstrated of clinical facts. Oliver, (1), in studying this relation among the insane at the State Hospital at Norristown, found it quite intimate, as seen in the corresponding exaggeration or diminution of the two reflexes, according as they were observed in the earlier or later

*Read before the Medical Society of Pennsylvania, May 21, 1896.

1. 7th Annual Report of the Ophthalmic Dept. of the State Hospital for the Insane at Norristown, Pa.

stages of the disorder. We quote from him observation VIII: "In quite a number of cases where there is more or less want of reaction of the irides to light-stimulus, the patellar reflex was found the more diminished on the same side as was found the larger pupil." As to the frequency of the relation he says nothing.

Marina, (1), in his recent admirable treatise on the ocular palsies, tabulates a great number of cerebro-spinal disorders exhibiting pupillary anomalies, from which he calculates the frequency of reflex-iris-paralysis (§) in syphilis at 48 per cent, in progressive paralysis at 50 per cent, and in tabes at 80 per cent. Hirt, (2), working at the subject from the other side, is convinced that absence of the knee jerk is observed in by far the greater number of tabics.

Up to the present time, however, no one has estimated how often the loss of these two reflexes occurs together. Addressing his observations to this point, one of the writers of this paper (Dr. Wilmarth), made careful inquiry into 28 cases presenting absence of either the iridic or patellar reflex or both; of which number of cases one-half were specific, subjectively or objectively, and the other half were non-specific. The material for this work was found among the patients at the State Hospital for the Insane at Norristown, Pa. The tabulated results of the foregoing investigation show the following:

Non Specific Class.

Showing involvement of patellar reflex, only,	3 or 23 %.
Showing involvement of iris reflex, only.	1 or 7%.
Showing involvement of both reflexes,	10 or 70%.

Specific Class.

Showing involvement of knee reflex, only,	1 or 7%.
Showing involvement of iris reflex, only,	2 or 16%.
Showing involvement of both reflexes.	11 or 77%.

Thus, among the non-specific cases there was found joint loss of both reflexes in 70 per cent, and among the specific in 77 per cent of cases, from which it would seem to follow that, either some association intimate in character must exist between reflex iris-paralysis and the loss of the knee-jerk, or that there must be sought some widespread lesion which invades both reflex paths in its progress.

(1.) Dr. A. Marina—*Ueber Multiple Augenmusked lahmungen, Wien*, 1896.

§In this paper, the term "reflex-iris-paralysis" will be used when referring to that anomaly of pupillary action generally known as the "Argyll-Robertson pupil."

(2.) Hirt. Text Book of Nervous Diseases, 1893.

Now what is the true nature of the lesion that brings about this interruption in one of the highest and one of the lowest reflex arches. The lack of any *anatomic* connection between the reflex center for the iris and that of the patellar tendon compels us to look elsewhere for an explanation of this fact. According to all the older writers, and in fact many of the authors of to-day, tabes is viewed as an affection limited to the spinal cord. Their idea was that the nerve degeneration was a primary idiopathic one. It was explained by some as an hereditary transmission; by others as the result of a predisposition toward degeneration, the gift of a preceding generation; and by still others as the operation of a long pent-up syphilitic poison that had for years lain dormant in the economy. These theories all had reference to the effect on the spinal cord of these different causative factors, and in so far as they confined the pathology of the disease to the cord, in that far they all fail to explain the vast array of cerebral and peripheral symptoms which the recent literature has added to the picture of tabes.

The influence of vascular disease on nerve change is the line along which later investigators have directed their energies. For instance, Dr. R. T. Williamson, (1), in papers originally published in the Medical Chronicle, has clearly stated the more recent theories on the relation of the blood supply to the diseases of the cord. He believes, with Redlich and Obersteiner, that disease of the posterior nerve roots begins where they pass through the meninges to enter the cord, and results from a chronic meningitis and arteriosclerosis in this region; further, that in tabes, changes in the cord and posterior nerve roots occur first and are most marked in the lumbar region in a large majority of cases. This is the region most feebly supplied with blood. Probably the posterior parts of the cord are more poorly furnished than the anterior. Nagrotte, (1), in studying the pathology of several cases of general paresis, tabes, and cerebrospinal syphilis with special reference to the character of the lesions found, noted in all cases certain inflammatory changes of a chronic character, and is inclined to think that "the three separate clinical pictures are only the result of the *preponderance of the inflammatory process in certain locations*, the nature of the process being essentially the same." He dismisses the subject as follows: "There exists in tabes, general paralysis, and

(1.) Abstracted in "*The Journal of Nervous and Mental Diseases*," for August, 1895.

(1.) *Archives de Neurologie*, Oct. 1895. Abstracted in *American Journal of Medical Sciences*, Jany, 1896.

syphilitic myelitis a diffuse inflammatory process which involves the whole cord. This lesion merits the name of vascular or connective, on account of the tissues it seems to first attack. It is essentially a round cell infiltration of the pia, arachnoid and capillaries of the spinal cord, and has a peculiar predilection for the coats of superficial veins. Changes in the essential elements of the cord are secondary. This process appears to be constant.

The same views are reflected by Sachs, (1), Trevelyan, (2), Hirt, (3), and others to the effect that tabes represents a secondary degenerative process in which the entire nervous system takes part. The reason that we are unable in all cases to demonstrate the participation of all the nerves—that in many cases, for example, the cord seems to be the part most affected while the brain and its nerves appear less injured—lies in the fact that we have been accustomed to examine the cord with the greatest accuracy while the brain and peripheral nerves were considered only of secondary importance; and secondly, in the fact that many cases are terminated by intercurrent diseases before the degenerative process could develop in all directions.

We have quoted these views fully because we hope to show that the disappearance of the iris and the patellar reflex is secondary to vascular change.

If we accept the idea of a primary degeneration of the posterior columns of the cord extending by ascending degeneration to the medulla and 4th ventricle, there to set up iris and other 3rd nerve palsies, how are we to explain the involvement of the nucleus for the sphincter pupillae only, to the exclusion of all the other nuclei of the 3rd nerve? Can we imagine that so minimal, yes, even almost microscopical, a portion of the gray matter in the floor of the 4th ventricle can be robbed of its functional activity, while all the nuclei about it remain immune? Hardly so.

Let us apply the vascular idea to this phenomenon. Schmeichler (1), observed in many patients with severe pneumonia or typhus, (without meningeal symptoms), that light failed to produce pupillary reaction; if the patient recovered, the movements of the pupil following light returned. He further states that in deep sleep light produces no pupillary response, while in light sleep this is not the case. His explanation is that the irritability of the central nervous system—pathologically in the former, and

(1) "Brain"—Parts LXX and LXXI.
(2.) "Brain"—Parts LXX and LXXI.
(3.) Text Book, page 624.
(1) *Archives of Ophthalmology*. Vol XVI p. 354.

physiologically in the latter case—is so much lowered that the most delicate of all reflexes, the pupil, has been lost. This is directly in line with our argument. The furnishing of the medulla with a high blood pressure through the union of the two vertebrals to form the basilar artery, and the maintenance of a uniform pressure by it through many small vessels given off at right angles from the main artery, indicates the need of a high degree of nutrition. These little arteries given off by the basilar are all end or terminal arteries. On investigating the causes of ocular vertigo with special reference to the supply of blood to the muscles of the eyes, Mendel (1), found that the nuclei that preside over the movements of the ocular muscles receive their branches from the posterior cerebral artery through fine terminal branches not anastomosing with each other. The result of this arrangement is that the slightest disturbance in the central circulation immediately detracts from the supply of blood to the ocular muscles. Another fact of importance is that the region in the medulla where are located the nuclei for the ciliary muscle and the iris is supplied by a special branch which has no relation with the region in which the other nuclei are found (1).

May not now a very slight degree of vascular change be enough to destroy the functional activity of the pupillary and ciliary centers? And as the pupillary is the more delicate act, is it not more likely to be first abolished, just as we find in tabes? Be the vascular change what it may, a peri—or an endo-arteritis, it seems from the physiology of these parts that but little change is necessary to completely set aside the pupillary movements.

Similarly, in the lumbar region of the cord, where the blood supply is relatively poor, the patellar reflex suffers early, in tabes, for the same reason—alterations in the blood vessels. While not so finely adjusted as the iris reflex, it must not be forgotten that it is the longest reflex arch in the body.

In conclusion, while we realize that it would be unwise to dogmatize in this domain of medicine where so little is positively known, we wish to state our belief that in Tabes and its sister disorders, general paresis and cerebro-spinal syphilis, the determining lesion occurs in the blood vessels of the central nervous system, and whether it be a peri or an endo-arteritis or both, the outcome is the same; namely, a starvation process, which in its turn so obtunds the cerebro-spinal reflex activity as to abolish

(1.) *Journal Nervous and Mental Diseases*, Sept. 1885.

(1.) *Noyes, Text Book*, p. 146.

both the iris and the patellar reflex; the first so sensitive because of the exceeding delicacy of the structures with which its reflex action deals; the second so sensitive because of the great length of its reflex arch.

ABSTACTS FROM CURRENT NEUROLGIC LITERATURE.

By Wendelll Reber, M. D.,
of pottsville, pa.

On the Nature and Treatment of Exophthalmic Goitre.

At the April meeting of the New York Neurologic Society, in the course of a discussion on the nature and treatment of exophthalmic goitre with special reference to the thyroid theory, and the question of thyroidectomy, Dr. M. Allen Starr urged the theory that this disease was due to hyperactivity of the thyroid gland—a theory first proposed in 1886, and which had gradually gained ground since then. He drew a clear picture of the differential diagnosis between Graves' disease and myxoedema. The essential symptoms of exophthalmic goitre are swelling of the thyroid gland, protrusion of the eye-balls, rapid heart action, burning of the skin and perspiration, intense nervous excitement, irregular and rapid respiration, and sudden exhaustion. In myxoedema there was primary atrophy of the thyroid gland, or a destruction of the gland by a cystic growth. There was also a marked tendency to the falling of the eyelid independently of thickening of the lid. In exophthalmic goitre the eyes were abnormally wide open, and there was a tendency to retraction of the upper lid. The condition of the heart and arteries in myxoedema was exactly the opposite of that found in exophthalmic goitre, the pulse being slow and of high tension. In myxoedema the skin is thickened and dried, the growth of the hair is impaired, and the nails are discolored. In exophthalmic goitre the skin is moist, soft and smooth, and the hair and nails grow rapidly. In myxoedema the patients suffer constantly from a sensation of cold; in exophthalmic goitre they suffer from a sensation of heat, and at times the temperature is actually elevated from one-half to one degree. In myxoedema the patients are dull and apathetic; patients with Graves' disease are characteristically alert and active, and intensely emotional. In most exophthalmics there is an abnormal physical activity.

It was well known that a large proportion of cases of exophthalmic goitre recover, indicating that the disturbance was functional. A reduction of the secretion of the thyroid gland to a normal amount would result in a cure. The various remedies recommended for this disease caused a diminished activity of the gland. Thus, belladonna was one of the remedies, and it was quite possible that its beneficial action was due to its power to check glandular secretion. It was somewhat difficult to explain the well-known favorable action of aconite and veratrum viride, although it is possible that by their depressing action on the heart they only materially diminished the blood supply to the thyroid gland. The glycero-phosphate of sodium in doses of twenty grains, three times a day, he had found very useful in a number of cases. This remedy had been first used in the treatment of the ordinary goitre seen in Switzerland. Attempts had been made to treat cases of exophthalmic goitre by thyroid and thymus extracts, but the consensus of opinion at the present time seemed to be that this treatment not only was of no value, but was decidedly harmful. The most rational treatment would appear to be surgical removal of the thyroid gland, if the theory advanced were correct; but as the disease showed a tendency to spontaneous recovery, operation should not be resorted to except in long standing cases, or those in which the symptoms were very urgent. Out of 190 recorded cases of exophthalmic goitre operated on, 23 died within two or three days after the operation, 74 were cured, 45 were reported as improved or cured, 3 as not improved, and the final result was uncertain in 45. Many of the cases reported as "cured" had been kept under observation for a considerable time. As a rule the cure had not followed immediately, but within several months after the operation, the exophthalmos being the last to disappear.

Dr. Leonard Weber said that about ten years ago he had succeeded in curing a case of Graves' disease by a course of iodide of potassium. This woman had presented the usual symptoms, although the goitre was of large size and rapid growth. The dose was carried to 40 grains three times a day, with marked improvement in all the symptoms. The treatment was continued for two years, at which time the goitre had not quite disappeared, but gave no trouble. In several other cases he had noted similar benefit from this remedy. The glycero-phosphate of sodium, internally, had also given him good results. He laid much stress upon the chemical theory of the disease.

Dr. Sachs said that in young girls it was not at all uncommon to find a decided enlargement of the thyroid gland, lasting for a

considerable time, and yet with none of the usual symptoms of Basedow's disease.

Under the term Basedow's disease, he thought we were including a number of different conditions. He had noted one case of goitre with exophthalmos. In this case the goitre disappeared entirely and remained away as long as the thyroid extract was given, but the exophthalmos persisted. The treatment by the thyroid should not be altogether condemned, for in some cases there might be deficient activity of the gland in spite of the enlargement. In one case of thyroidectomy that he had observed, all the smyptoms had abated except the exophthalmos. This patient was an extremely stout woman.

Saline Bathe in Graves Disease.

Claude Wilson, (The Practitioner, Sept. 1895), reports a case of exophthalmic goitre in an unmarried lady of fifty, in which saline baths gave remarkably good results, after rest and drug treatment, (nerve sedatives, tonics, strychnine, digitalis, and strophanthus), had been tried for months and failed utterly. The baths given were prepared in such a manner as to imitate the natural waters of Nauheim as closely as possible. The chief rules for the administration of these baths are put down as follows:—

1. Begin with weak baths, (1 per cent common salt, or 1 lb. to each 10 gallons of water, and 1½ drams of calcium chloride to each 10 gallons of water), slightly below blood temperature.
2. Gradually increase the strength (up to 3 per cent Na. Cl. and 3 per mille. Ca Cl.), and duration of bath and lower the temperature to 85.
3. Add free carbonic acid (by adding bicarbonate of soda and muriatic acid), to the stronger baths.
4. Have the patient lie down for an hour after each bath.
5. Never give the baths for more than four consecutive days without an interval. The carbonic acid is not necesssary in all cases, nor is it equally well borne by all patients.—[Abstracted in Journal Nervous and Mental Diseases, June, 1896.]

On the Value of Choked Disc as a Diagnostic Sign in Deep-seated Cerebral Tumor.

Saenger (Trans. Hamburg Medical Ass'n.), presented an instructive case history. The patient, 27 years old, exhibited the following symptoms: Failing vision and bilateral incipient optic neuritis with an hemianopsic defect in the right visual field. Later there developed well-defined choked disc, bilateral right hemianopsia and alexia. The diagnosis, presumably, was a lesion in the left parieto-occipital region. When the patient was

trephined, there was no tumor discoverable by inspection, palpation or puncture. Nevertheless, the choked disc subsided rapidly, the optic nerves resumed their normal appearance and vision rose to almost normal.

Nine months later, however, (after the hernia had protruded through the surgical opening and had grown to tremendous proportions), the patient died. The necropsy revealed an enormous deep-seated glioma. Saenger adduces this case as an argument for trepanation, as a palliative measure, in those cerebral tumors that cannot be removed.—[Centralblatt fur Augenheilkunde, Jan. 1896.]

A Contribution to the Knowlege of Nuclear Ocular Palsies.

Boedeker, at the March meeting of the Berlin Psychiatric Ass'n., cited a case of chronic ocular palsy occurring in a 49 year old female, a paranoiac.

History as follows: For 13 years prior to the report of the case, the vision in her left eye had been poor and there was inability to raise the left upper lid. There was outward squint and diplopia according to the patient's statement. By 6 years prior to the time of report, the left eye had become entrely blind. The condition shortly before death was one of complete oculomotor paralysis and optic atrophy in the left eye. The motility of the right eye was normal but there was present a constant reflex iris paralysis.

Microscopical investigaton of the brain showed the nuclei of both 4th nerves to be normal. Both oculo-motor nuclei, however, including the intra-nuclear and the centrifugal fibres were degenerated to a marked degree, the right nucleus perhaps less than the left. B. remarks upon the unusual phenomenon of preservation of the motility of the right eye in the presence of a completely degenerated 3rd nerve nucleus on that side.

Polyencephalitis hemorrhagica Acuta, (Alcohlica.)

Boedeker, at the February meeting of the Berlin Psychiatric Ass'n. reported a case of the above affection that came to autopsy. The earlier symptoms were bilateral abducens paralysis, bilateral oculo-motor paralysis varying in intesity and not accompanied with ptosis; typical Argyl Robertson pupil. Associated with these was a right facial paresis, paraplegia and tremor.

After an acute illness of 4 weeks the patient died. The post-mortem findings agreed in general with those of Wernecke, Kojeionikoff, Thomsen and Jacobaus, excepting that in Boedeker's case the atheroma extended even to the smaller vessels accompanying the peripheral nerves. In the 6th nerve nucleus there was nothing abnormal to be found despite the abducens

paralysis observed during life. Boedeker thinks this points to an association between the 6th nerve and the oculo-motor nucleus.

On the Path Traversed y Visual Impressions, and Their Elaboration.

The American Journal of Psychology speaks in the following terms of Ramon y Cajal's latest contribution to medical literature:*—

"The Spaniard of Barcelona, of such world-wide reputation, has with perfect right ventured over the line of strict anatomy into the provinces of psychology. The invasion is a welcome one."

The first part of Cajal's dissertation, and this is the only part to which we will turn our attention, deals with the question, "Has the individual perception, one or several nerve cells for underlying basis?" The recent investigations into the structure of the nervous system all demonstrate that many, very many, cells and fibres are engaged in the slightest sensation. From the sense organ to the cortex there is a well connected chain of conductors or neurons which transmit, avalanch-like, any single sense impressions on the periphery to an ever growing number of cells and fibres until it finally reaches the cortex. Thus in the fovea centralis retinae, in which the vision is clearest, one rod affected by light stimulus transmits the excitation to a bi-polar cell; this conducts it further to a ganglion cell beneath it (cell of the ganglion layer), the nerve process of which branching out richly in the fore corpora quadrigemina, spreads the movement over a considerable number of cells, and finally the axis cylinders of these cell groups end in the occipital part of the cortex, where they come into contact by means of their branches with the end brush-like formations of a large number of pyramidal cells. Thus the orginal peripheral unit of excitation has been able to impart its excitation to hundreds or perhaps thousands of nerve cells in the cortical centres of vision.

*"Einige Hypothesen Uber den anatomischen Mechanismus der Ideenbildung, der Association und der Aufmerksamkeit." *Archiv fur, Anatomie u.* Entwickelung-geschichte herausgegeben von His. 1958 4ht-6th Heft.

REMARKS ON THE OCULAR SYMPTOMS OF GENERAL PARALYSIS OF THE INSANE, WITH SPECIAL REFERENCE TO ITS CLINICAL GROUPING.

By W. Bevan Lewis, L. R. C. P., M. R. C. S.

ABSTRACTED FROM THE BRITISH MED. JOURNAL, APRIL 25 AND MAY 2, 1896.

By L. R. Culbertson, M. D.,
ZANESVILLE O.,

Mr. Lewis treats this subject in one of the most masterly articles that has yet appeared. We regret that lack of space prevents us from copying the article in full. Every ophthalmologist should carefully study the original in the British Journal.

"The reflex loop for the contraction of the sphincter iridis is constituted by the retina, optic nerve and tract, and Meynerts tract connecting the latter with the center as the incident, and the third nerve as excitor or motor. The center is constituted by motor oculi nucleus lying along the floor of the Sylvian aqueduct, and the short ciliary nerves emerging from the lenticular ganglion are regarded as the myotic fibres emanating from this centrum (Gaskell, Jessop).

All the sensory nerves from the fifth cranial to the last spinal may cause reflex dilatation of pupils. The center for dilatation is, according to Hensen & Voelkers, just external to the nucleus of the third nerve beneath the corpus quadrigeminum.

The existence of radiating dilating muscular fibres for the iris in man is not now admitted, although in certain animals its existence has been confirmed. Gaskell regards the fibres in the cervical sympathetic as purely inhibitory, and terms the nerve the "cervical splanchnic." The original investigations of Hensen and Voelkers in dogs indicating that the contraction of the ciliary muscle for accommodation, is effected through the most anterior group of cells in the oculo-motor nucleus; and the contraction of the sphincter iridis by those immediately posterior to this group, have been with certain modifications confirmed by successive observers.

Pupillary Anomalies.

Inequality of the pupils may in itself be a sign of but small moment, as in adhesions of the iris to the lense capsule, or from mydriatics or myotics; or, on the other hand, it may be a sign of great import, as indicating a centric cortical disturbance, but as having a localizing value in indicating the hemisphere at fault.

After eliminating possible fallacies due to eccentric agencies, we have first to decide which of the pupils—the larger or the smaller—indicates the eye affected. Pupillary inequality is by no means necessarily associated with defective reaction. If, however, with unequal pupils, we note that either the larger or the smaller present a sluggish, or totally abolished reaction to the normal stimuli, we naturally infer that this is the affected organ; it is, therefore, always necessary to examine systematically the reaction to light when inequality presents itself.

(a) Rhythmic Oscillation: If the eyes of a healthy individual are directed in diffused daylight to a distant point, with the accommodation thus at rest, we observe a constant slight oscillation of the iris betwixt dilitation and contraction corresponding with the respiratory rhythm and undoubtedly dependent thereupon. Each inspiration is accompanied by pupillary dilitation—each expiration by a corresponding contraction, immediately effected by the varying fullness of the iridial blood-vessels dependent on the changes in blood-pressure in the organism at large.

(b) Muscular Movements: Muscular movements cause dilitation of pupils. This is of no clinical import.

(c) Sensory Stimulation: Stimulation of skin by tickling, pricking with pin, etc., will cause dilatation of pupil. Even if under chloroform and we shout in patients ear there will be dilitation of pupils. In stimulation of the skin of hemianaesthetic subjects, and in sleep and coma the same reaction will occur.

About 36 per cent. of cases of general paralysis and 24 per cent. of epileptics do not have this reaction. I find the percentage of loss of reflex pupillary dilatation in all cases of general paralysis is for male subjects near 43 per cent.

Loss of light reflex is not necessarily associated with failure of reflex dilatation on stimulating the skin. Gowers believes that when the pupils are not small the "skin reflex" persists, and when they are small it is lost.

(d) Emotional or Psychical States: Rage, fear, joy, etc., cause dilatation. Epileptics present this feature, and the phenomenon is of importance clinically, since it may mislead us when examining the reactions in cases of insanity, and especially epilepsy, in which the subjects show so much emotional instability.

This is no doubt due to the agency of the sympathetic—in fact,

to stimulation of the vaso-constrictor muscles of the iris; yet it should be noted that it is present when by disease of the spinal tract no response can be obtained to the usual cutaneous stimulation. In a like manner when the pupils fail to dilate to shading the "psychical" reaction may still be obtained. Ordinary sensory dilatation (on cutaneous stimulation) does even ensue when the cervical sympathetic is divided as shown by Vulpian, and this clearly indicates that the cilio-spinal and sympathetic tract is not the only one by which the stimuli inciting to dilatation may be conducted. It is, therefore probable that the psychical dilatation referred to is induced through a higher centric tract.

(e) Morbid Oscillations: "Hippus." This is found in cases of serious cortical implication, such as general paralysis, and probably depends upon circulatory disturbances in the cortical blood-vessels.

(f) Consensual Movements: With accommodation at rest upon alternately shading and exposing one eye, both pupils are observed to dilate and then contract—the reaction in the eye shaded being spoken of as the consensual reflex; the reaction in the eye alternately shaded and exposed being the direct light reflex. Since, however, the contraction and dilatation are induced through two distinct motor channels—that of the third nerve and the sympathetic respectively, it is convenient to distinguish these movements as:

Indirect light reflex—(a) Consensual dilatation.
(b) Consensual contraction.
Direct light reflex—(a) Direct reflex dilatation.
(b) Direct reflex contraction.

Dealing with the consensual first, it must be assumed that the channel for the excitation of the third nerve nucleus will comprise not alone the fibres crossing at the optic chiasm, but the direct fibres of the optic nerve passing from the excited retina down to the tract of its own side. (Knoll Bechterew Erb.) This may safely be inferred since in lesions of one tract, resulting in homonymous hemianopsia, the consensual reaction can still be obtained in both eyes. Thus in a lesion of the left optic tract excitation of the right eye still induces contraction of the left pupil, which would not occur if the current passed along the commissural crossing only, and not, as in the case, by the medium of the right tract, whence it reaches the motor oculi of the left eye through commissural fibres connecting the nuclei of both sides. By this mechanism it is readily seen that lesion of the optic tract of one side does not abolish the consensual or the direct light reflex. Again, the consensual dilatation in normal states is equal to the direct reflex dilatation, both shaded and uncovered eye having an equally dilated pupil; for just as much as the shaded eye lessens the contraction of the exposed eye so much does the

exposure of the latter, diminish the resultant dilatation of its fellow. I have occasionally heard a question raised as to the actual inequality of the pupils, on the ground that one eye was shaded and the other illumined; whereas in healthy states, these conditions would not result in inequality.

The conjoint operation of consensual and direct excitation of both eyes admits of far greater range of movement than is obtained by either separately. Thus the moderate dilatation of pupil obtained by shading one eye is greatly augmented by shading both, and the same statement applies to contraction upon exposure. It is important to remember this, since, in testing the integrity of the sympathetic dilating fibres, the consensual dilatation should not be alone relied upon, but the more notable effect upon shading and uncovering both eyes simultaneously.

If a paralyzing lesion affects the sympathetic fibres one side, three important signs will indicate the fact:

(a) Upon shading the eye of the sound side no consensual dilatation of its fellow is induced.

(b) Upon shading the eye of the affected side no direct reflex dilatation is induced, although its fellow dilates consensually.

(c) Upon shading both eyes a marked contrast occurs. On the affected side the pupils remain motionless, on the sound side a wide dilatation ensues.

In short, unilateral sympathetic lesions are indicated by a failure of the affected eye to dilate consensually or directly, and by a marked contrast in the two upon shading both pupils.

The optic nerve comprises, according to Gudden, two distinct varieties of nerve fibre, which are recognized microscopically. The finer of the two subserve vision, the coarser conduct impressions back to the central nuclei, subserving the reflex movements of the pupils. These latter are more resistant to pathological changes than the visual series, which are often atrophied when the pupillary fibres remain intact. In serious lesions, however, in front of the chiasma, either retinal or affecting one optic nerve and entailing monocular blindness, we find:

(1) Failure to contract or dilate on direct light stimulation.

(2) Failure to excite its fellow consensually.

(3) Its own consensual reaction follows excitation of the sound eye.

(4) No marked contrast occurs on shading both eyes as in sympathetic lesions.

(g) Direct Light Reflex.—From what has already been stated it will be understood that we cannot absolutely exclude the operation of consensual influence when testing the eye for direct light reflex—the latter always includes a consensual element—for where the eye not under examination be shaded or exposed, its excitation must affect and modify the movements of

its fellow. This, however, as an invariable rule applies only to healthy states; for when the sympathetic cilio-spinal fibres or the nucleus of the third nerve are implicated unilaterally, the result is necessarily greatly altered.

A moment's consideration will indicate that in its consensual influence each eye possesses an element of antagonism to its own overaction to direct light excitation. Thus excitation of the left eye being followed by contraction of the right lessens the consensual influence of that eye, and hence tends to restrict its overcontracture. If the right pupil through lesion of the motor oculi nucleus had not contracted, then its larger range of retinal excitability would tend still further to intensify the contraction of the left pupil. Again, if the left eye be shaded the dilatation of the right pupil tends consensually to oppose excessive dilatation of the left; if the right pupil had remained immobile from lesion of the cilio-spinal fibres, a more extensive dilatation of the left pupil might be anticipated. If I am correct in so concluding, then clinically we should expect all cases of unilateral implication of the third nerve nucleus or the sympathetic would entail beyond the defective or abolished reaction of the affected eye an exaggerated reaction of the sound organ.

If we find the direct reflex repaired in vigour and sluggish, it may be necessary to concentrate the light by a bull's-eye condensor, which will often induce distinct contraction when the pupil under less excitation appeared fixed to light. In certain cases of general paralysis the initial contraction thus induced may be succeeded by a secondary dilatation—the pupil expanding widely in spite of the concentrated illumination. This is often seen (13.6 per cent of all cases of general paralysis) and is one of the earliest signs of failing motor oculi nucleus.

(h) Accommodative Movements of the Pupil.—Patient is placed in a moderate light and fixes eyes on a distant point and the size of pupils is noted. He is then directed to look at his finger, a few inches in front of his nose, and the range of vigour of contraction noted, or any unilateral or bilateral defect estimated. This contraction of pupil is much more intimately associated with convergence than with accommodation alone, for where accommodation occurs without convergence, we get no pupillary contraction; but where accommodation does not accompany convergence we still have pupillary contraction. Let us now consider morbid pupillary reactions as illustrated by a series of cases of general paralysis.

(1) Inequality with Normal Reaction.—Cases presenting this condition of simple inequality fall naturally into two categories:

(a) Inequality of transient duration due to temporary cortical disturbances such as epilepiform discharges, aploplectiform seizures, the onset of certain paralyzing lesions.

(b) Inequality of more persistent character due to grave dis-

ease of the brain; to pressure of fluids, growths, inflammations or degenerations. Transient dilatation due to cortical discharges are often the precursor and the earlier stage of a more persistent inequality, and that these latter more established conditions must be attributable not to bulbar and spinal but to cortical implications where the pupil reflex was not involved. It is now clear to my mind that we have every reason for regarding the early pupillary inequality as an indication in these cases of general paralysis of cortical lesion, whilst the defective iridial reaction is due to implication of cilio-spinal and bulbar territories. But here again we must distinguish between early and late inequality, the latter being due to advancing lesions of spinal and bulbar arrangements.

In 24 cases of discharging and destroying lesions of the cerebrum in epilepsy, and chronic brain atrophy, there was but one exception to the rule that the larger pupil observed prior to the seizure was always on the side of the lesion. During the attack, or immediately following thereupon, these conditions are often, though temporarily reversed. In all such instances the reactions to retinal and sympathetic stimuli were preserved.

From an important series of observations Mr. Jonathan Hutchinson, Jr., deduces the following facts:

1. In cases of concussion:

(a) Pupils respond slowly to light and no marked mydriasis or myosis.

(b) In a small proportion a temporary unilateral or bilateral mydriasis ensues.

2. Inflammation following severe injuries to brain—Myosis usually present.

(2) DEFECTIVE REACTION.—*Consensual Failure:*

Partial reflex iridoplegia { 1. Loss of light reflex. 2. Loss of reflex dilatation, "skin reflex" shading.

Complete reflex iridoplegia { 3. Both conjoined.

Associative iridoplegia { 4. Loss of contraction upon convergence only.

Complete iridoplegia { 5. All the above conjoined.

Cycloplegia iridoplegia { 6. Loss of accommodation superadded.

3. Compression from meningeal hemorrhage. Mydriasis on side of lesion in at least half the cases, and myosis very rare.

If the early inequality of the pupils indicates the cortical lesion in general paralysis, in what proportion of cases do we find such inequality preceding any notable effect in the reflex adjustments of the medulla?

Out of 147 cases examined, 71 patients showed the direct

light reflex intact or merely sluggish; and of the latter as many as 33 exhibited a notable inequality of pupils. In 73 instances where consensual and direct light reflex in both eyes were absolutely abolished, 34 presented an inequality of pupils. Thus the proportion in both cases is such as to indicate no relation ship betwixt pupillary inequality and the efficiency of the iridial reactions respectively.

3. Compression from meningeal haemorrage. Mydriasis on

Each group was examined (1) for visual and oculo-motor symptoms; (2) for bulbar and cerebral symptoms; (3) for spinal symptoms; (4) for prevailing mental symptom.

First Group.

Taking the oculo-motor symptoms first, we find a moderately large pupil steadily becoming more and more dilated, usually involving both pupils, but very rarely a unilateral implication. Failure of consensual and direct light reflex with accommodation intact ("Argyll-Robertson pupil") showing motor nucleus of third nerve and not sensory nucleus involved. It has been assumed that failure to respond to light (whilst contraction upon convergence is still preserved) necessarily implies lesion of Meynerts fibres, which connect the optic termini in the quadrigeminal bodies with the nucleus of the third nerve, and were the defect bilateral, then a bilateral affection of this tract might explain the phenomena. Often, however, we find the defect unilateral, and upon the assumption that an intra-nuclear connection exists betwixt the two third nerve centers this explanation obviously must be incorrect. This intra-nuclear connection undoubtedly exists, and is the tract whereby consensual movements are still preserved in unilateral lesions of the optic tract. In the series of cases under examination 11 presented unilateral failure to light without impairment of the accommodative contraction, and clearly therefore we are driven to the conclusion that the motor segment or nucleus must be the affected region. Since this unilateral failure often precedes the failure on both sides for some time, there is no reason to assume that Meynert's tract in the latter case any more than in the former. The gradually advancing mydriasis is fully accounted for by the unopposed action of the sympathetic, and the dimensions of the pupil form a gauge of the sensory and psychical stimuli affecting the iridal-dilating mechanism. Shading the eyes no longer produces dilatation, since the third nerve nucleus being involved, the exclusion of retinal excitation can no longer inhibit as heretofore. To indicate however, that the cilio-spinal tract is free, cutaneous stimulation may be applied when the pupils further dilate. Occasionally such response is not obtained on cutaneous stimulation, and we then discover on exploration that common and other forms of sensibility are considerably impaired.

We find certain exceptional cases occur in this group where the mydriasis cannot with justice be wholly assigned to a lesion

of the third nerve nucleus. In these cases the pupils are of moderate size or somewhat larger than usual, but their reaction to light and to shading and to all other forms of sensory stimulation may be either extremely sluggish or altogether abolished, a large fixed pupil being the feature.

It would appear that this can only result from a paralytic implication of both the sympathetic and third nerve supply, a genuine, iridoplegia or paralysis of circular fibres and dilating mechanism resulting. On the other hand, a distinctly mydriatic pupil failing to react to light may also fail to dilate on shading as before indicated, is obviously due to interruption of the retino-iridial arc, the third nerve nucleus being paralyzed, the shading of the eye no more than its brighter illumination produces any result. It is different in the small or moderately sized pupil due to paralysis of the sympathetic; here the pupil whilst reacting to light might a priori be imagined to fail in dilatation when shaded. This, however, is not the case—the movement may be sluggish, but distinct, slight dilatation is perceived, not however due, I take it, to sympathetic influence, but to the differential betwixt a greater and lessor light stimulus affecting the intact retino-iridial arc. These features, therefore, especially, indicate the importance of cutaneous stimulation as a test of the integrity of the vaso-motor iridial innervation. As an instance of this paralytic mydriasis with sluggish or immobile pupils the following case may be cited: Where with moderately large pupils, in which the right fails to react to light, but contracts on convergence, no dilatation occurs on shading, but normal action of the sympathetic is at once elicited upon sensory stimulation, and coordinate movement, the visual acuity being normal.

Exalted Reflexes, Speech Troubles, Muscular Tremors and Inco-ordination and Tabetic Cases: [These symptoms can be found in the full article or in any text-book of nervous disease.—L. C.]

ASSOCIATIVE IRIDOPLEGIA.—In another group of cases the pupil is moderately dilated, fails to react to light either direct or consensual, and also fails to contract on convergence. The Argyll-Robertson pupil by no means necessarily terminates in abolished contraction upon convergence. Failure of the usual dilatation up on shading is observed and this is explained by Mr. Hutchinson upon two hypotheses.

(a) That neither sympathetic or retinal incident can produce active dilatation or contraction in the absence of its antagonist.

(b) That the lesion has resulted in paralyzing both the fibres of the sympathetic and motor oculi supply. We have, however, seen reason for doubt as to the implication of the vaso-motor in such cases; as above stated, we should not expect dilatation upon shading, even were the sympathetic intact. Mr. Hutchinson appears to adopt the theory of dual implication (b) and refers the

site of the lesion to the ciliary ganglion as a crossway for all these fibres; here, he suggests, occurs the degenerative process resulting in this associative iridoplegia. In perfect conformity with this opinion is the fact that such cases (and I can affirm this for general paralysis as for ordinary tabes dorsalis), which fail to respond both to light and convergence, usually run on to an abolition of accommodation also, the ciliary muscle being paralyzed. With reference to this cycloplegic iridoplegia or ophthalmoplegia interna, Mr. Hutchinson remarks: "My suggestion is that when the triad of symptoms is present—inability to accommodate, paralysis of the dilating fibres of iris and paralysis of contracting fibres of the iris—without any other form of orbital paralysis, the seat of the disease can be in no other structure but the ganglion itself. My only hesitation on this point is as to whether in some cases the same symptoms may be due to disease near the nucleus of the third nerve. It is not easy in such cases to see why the vaso-motor should be affected. I have, however, seen the pupil motionless and accommodation lost in some cases, in which the disease was believed to be in this position; always, however, there were other complications."

It is, of course, possible that such symptoms may result either from peripheral or central lesion; and in the cases quoted by Mr. Hutchinson, it is just as probable that the lenticular ganglion was the site of implication, as it is that the forms of ophthalmoplegia interna prevailing in general paralysis, the lesion is a nuclear one in the extensive segmentations of the third nerve. Nor does it appear to me improbable that so extensively segmented a tract as that presented by the motor-oculi nucleus should have very close, though as yet undetermined, connection with the vaso-motor tract. Given this latter, and we have a full explanation of cycloplegic iridoplegia in general paralysis (which, moreover, is usually double) from degeneration of the third nerve nuclei in the upper quadrigeminal region.

Second Group.

(a) Mental Symptoms. (b) Speech Troubles. (c) Spinal Symptoms. These are described fully in the original article.

(d) Eye Symptoms: Associative iridoplegia rapidly passing into cyclopegia. Eserine will contract such pupils ad minimum and atropine dilate ad maximum.

Spasmodic or irritation mydriasis occurs, although infrequently. It may also be induced by reflex agency, as indicated by Von Brandenburg in a case where the light and convergence reflex were preserved and also by the irritation of intestinal worms and other sources of irritation.

THE CYCLOPLEGIA. The failure of accommodation was bilateral in all cases, and in two individuals only was the cycloplegia not associated with iridial implication; in fact, paraly-

sis of the sphincter iridis as well as the sympathetic supply to the iris almost invariably accompanied the ciliary paralysis. The pupils were only exceptionally very large, and no response could be obtained to light, to shading, or to sensory stimulation. At the same time the associative iridoplegia was not only complete, but like the accommodative failure, bilateral.

In view of the segmentation of the third nerve nucleus, now well established, and in reference especially to the functional significance of such segmented nuclei, it is open to suggestion that degeneration of these closely approximated centers of innervation might explain the cycloplegic iridoplegia in such subjects but for the serious difficulty already enunciated. It might be assumed that a lesion involving the median nucleus and the two pale club-shaped nuclei (Edinger-Westphal)—termed postero-internal by Bruce—and the two anterior nuclei would explain the paralysis of the tensor choroidae (cycloplegia) and the sphincter iridis both for light and during convergence; but, since the pupils are fixed, failing to dilate also, we have still to reckon with the sympathetic, the vaso-motor supply of which does not so far as we at present know, come into relationship with these nuclei. So far as our present anatomical knowledge extends, the ciliary ganglion is the only site at which the fibres for the tensor choroidae, sphincter iridis, and dilating mechanism of the iris come into close apposition, and it is here, therefore, that Mr. Hutchinson points out that a lesion might be anticipated.

If this view be accepted, we must be prepared to admit the occurrence in our cases of a bilateral and symmetrical implication of this small ophthalmic ganglion, whilst a further difficulty presents itself in the fact that we should a priori anticipate in this event a simultaneous affection of all its nerves; whereas, iridoplegia (that is sympathetic and motor oculi) appears to precede the cycloplegia, and this creeping paralysis might seem more in consonance with a progressive degeneration of the anterior or posterior-internal nuclei of the third nerve, eventually invading the median nucleus. It may, however, be regarded as certain that such a lesion as would affect the nuclei in the medulla and cause cycloplegia iridoplegia would (even in case of a proved connection betwixt these nuclei and the vaso-motor) simply cut off the influence connected with varying degrees of light, and hence impair simply the dilatation of the pupil on shading; the dilatation upon cutaneous stimulation would still remain in force through the cilio-spinal tract. Now in several instances of cycloplegic iridoplegia this was not the case, for no dilatation occurred upon sensory stimulation, and I think it may be taken for granted that a large pupil with cycloplegic iridoplegia failing to respond both to sensory stimulation and to shading, indicates implication of the ciliary ganglion, whilst if there be response to sensory stimulation and not to shading, it indicates nuclear degeneration of the third nerve. The diffi-

culty of accepting the ciliary ganglia is acknowledged by Mr. Hutchinson: "One fact I must ask especial attention to; it is that the paralysis of the iris appears to precede the loss of accommodation, and also to resist treatment longer. In none was the failure of accommodation the first symptom—a fact the more important when we consider that it causes a condition which the patient is not likely to overlook, whereas a motionless pupil may easily escape attention. It is, I admit, difficult to explain on the theory that the disease is in the ganglion, why the ciliary muscle and the sphincter of the pupil should suffer in different degrees."

Mr. Jonathan Hutchinson says: "I cannot but regard it as highly probable that in almost all cases the affection (cycloplegia without mydriasis) is due to syphilis. We may notice that it does not appear to occur amongst the later forms of tertiary disease, but rather during that period in which, after disappearance of secondary symptoms, there is usually a long period of latency."

Ophthalmoplegia externa is of very infrequent occurrence in genuine progressive paralysis of the insane, and when present is usually incomplete and associated with affection of the intrinsic muscles of the eye. Suckling reports two interesting cases where ptosis, strabismus, nystagmus, and greatly restricted movements of the eyeballs were associated with symptoms suggestive of general paralysis, but it is extremely doubtful whether the latter term should be used to indicate the functional disturbance in such cases.

Third Group.

We now come to a very important category of cases where the pupils tend to become small and spastic, and in all (with two exceptions) of the instances tabulated, myosis was present upon the patients first coming under observation. These cases of this group, have an association of symptoms closely resembling tabes, and the mental symptoms were those of general paralysis.

OCULO-MOTOR AND SPINAL IMPLICATION. In almost every instance the accommodative movements of the iris were preserved—the Argyll-Robertson sign prevailing here as it does in a group still to be noted and characterized by a spastic paraplegia. Two cases only formed the exception and in these were found the pupils were very small, equal in size, fixed to light, but not to convergence; loss of knee-jerk; Romberg sign with well marked ataxia, sensibility intact, superficial reflex unimpaired, and Charcot joints. It is of interest here to note that our cases afford a decided answer to the question, which sign first presents itself in order of time—the loss of myotatic irritability expressed in impaired or abolished knee-jerk, or the oculo-motor implication?

In four patients a sluggish response could still be elicited from patella, although reflex iridoplegia was notably present in both

eyes; whilst still more to the point are the cases of three others, where the knee-jerks were even in excess with well marked Argyll-Robertson pupils, becoming, however, lost later on in the course of the disease.

The cilio-spinal implication was attested to in the complete failure to elicit dilatation either by shading the eyes, by cutaneous stimulation, or by co-ordinate movements of the limbs.

It must be noted also that the order of implication of these cases could not be definitely decided as a myosis followed by reflex iridoplegia—that is, as a paralyzing affection of the vaso-motor (cilio-spinal region) ascending to the quadrigeminal level and eventually implicating the motor oculi constrictor fibres. In all cases alike the small myotic pupil was found from the first associated with the absence of light reflex. It is now fully admitted that in tabes dorsalis cases occasionally occur where myosis is not a notable feature, where the pupils are of moderate size or even somewhat dilated, and yet exhibit the Argyll-Robertson sign (Raehlmann). Again in lesion of the cervical sympathetic, although the usual statement made is that the pupil on the affected side is contracted; yet many exceptions occur to this, and Mr. Hutchinson states that his own observations lead to the belief that not contraction, but simply inability to dilate is the feature: "I have examined the state of the pupil in six examples of paralysis of the cervical trunk of the vaso-motor, and in none was its size any less than 3mm."

It is, however, important to regard two indications as wholly distinct and of regional significance, the myosis indicating disease of the posterior columns of the chord, the loss of light reflex, with retention of the associated contraction on convergence, indicating disease of the optic nerve fibres, or their connection with the nucleus of the third nerve, or Meynert's fibres (Swanzy). We have seen reason, however, for regarding this explanation with doubt; in bilateral affections of Meynert's fibres such, doubtless, would be the symptoms; but in unilateral lesions of this connecting tract no effect on the light reflexes would ensue owing to the existence of a commissural tie betwixt the two motor oculi nuclei. Moreover, we know that these conditions are often unilateral, for example, in two illustrative cases, where we see with left reflex iridoplegia, associative movements being intact, the sympathetic reflex could not be obtained; sensibility, however, was notably defective.

Our only resource, therefore, is to seek an explanation for the defective reaction, in the nucleus itself, and this is fully authorized by the knowledge of its segmentation now admitted.

All further difficulty disappears if we suppose that fibres directly connect the "constrictor nucleus" with the vaso-motor tract in the medulla. Such connecting fibres would have to be regarded as inhibitory, their excitation through optic stimuli inhibiting the normal action of the cilio-spinal tract. Shading

the eyes (in normal subjects) would reduce such activity and favor dilatation, division of such fibres would, of course, act likewise, whilst disease lower down in the cilio-spinal region would induce a myosis through the unrestrained action of the motor oculi. Such moderate myosis as is usually seen in disease of the cervical sympathetic is not what we find in our cases of tabetic general paralysis; the pupil is usually very small—from 1 to 2.5 mm. at most, and would appear to be due to a lesion advancing upon the "constrictor" nucleus of the third nerve, introducing by its proximity an element of irritation, the paralytic myosis being now transformed into a spastic myosis. Contraction upon convergence is still maintained, the light reflex is lost, whilst the myosis and failure to dilate on shading or sensory stimulation indicates the implication of the cilio-spinal region also.

Should these (hypothetical) inhibitory fibres alone be implicated, a moderate or even large pupil might be seen which fails to dilate on shading, but does so on cutaneous stimulation, whilst the reaction to light might be more or less sluggish or impaired; if the disease extends up towards the "constrictor nucleus" itself, the Argyll-Robertson sign would supplement this condition with spastic pupil becoming large when the nucleus is destroyed. On the other hand, if the cilio-spinal or cervical sympathetic be diseased, the myosis would be associated with failure to dilate on shading, and with all forms of sensory stimulation.

Fourth Group.

Late eye symptoms; paralytic mydriasis, a partial reflex iridoplegia (for light only).

Fifth Group.

No oculi-motor symptoms beyond occasional inequality of pupils.

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ABSTRACTS, OF PROCEEDINGS OF THE OPHTHALMOLOGICAL SECTION, AMERICAN MEDICAL ASSOCIATION.

AT

ATLANTA MEETING, MAY 5-8 1896.

I. Address of Chairman, Dr. Lucien Howe, Buffalo. II. Papers read at the meeting with discussion. III. Papers read by title. IV. Papers not presented; specially abstracted for the ANNALS. V. Report of committees on Optic Nerve Atrophy and Detachment of the Retina, with discussion.

Chairman's Address.

"I feel impelled to ask your attention briefly to a growing tendency among us to regard difficulties of the accommodation and muscular apparatus as entirely local. I would fain say a word for that nearly forgotten factor, the 'general health.' We look upon the causes of asthenopia as more local than general because we see such a large proportion of cases which require only local treatment. Many cases exist, however, which in spite of most accurate correction of the refraction and muscular balance still suffer from asthenopia. In these cases the condition of the blood, of nutrition and of the nervous organization have much to do with the trouble and should be carefully looked after."

II. Papers read at the meeting, with discussion.

The Nomenclature of Conjunctivitis.

D. S. Reynolds, Louisville, Kenty.

"According to the intensity of the inflammation and the character of the infection, the pathological conditions vary, and it seems more rational to designate the varying types of conjunctivitis according to their pathological characters; for, as these vary there should necessarily be employed varying modes

of treatment. I should make two general divisions, Traumatic and Infections, and subdivide these into primary and secondary groups and each group into species according to the part of the membrane affected or the character of the infecting organism."

Sub-Conjunctival Injection.

E. J. Bernstein, Baltimore, Md.

"These points are worthy of consideration; first, observance of every practical aseptic precaution; second, thorough anaesthesia of conjunctiva with 4 per cent cocaine solution; third, use of cyanide of mercury instead of sublimate; fourth, the injection is to be made sub-conjunctival, and not under Tenon's Capsule. The action of drugs injected is intensified and it is a more exact method of dosage."

Discussion.

Dr. G. E. DeSchweinitz, Philadelphia. I have tried the injections and believe they should have a permanent place in ophthalmic therapeutics, but not to the exclusion of constitutional measures. They are valuable in any variety of iritis provided there is not high inflammatory action. In Neuritis and Episcleritis they act promptly, but I would suggest that relapse is more likely to occur than where ordinary constitutional measures have been thoroughly employed. I have obtained to the same results whether bichloride solution or salt solution was used.

Dr. G. C. Savage, Nashville, Tenn. I have used the bichloride solution but found it too painful. No matter what else may be used in treating iritis, atrophia should not be neglected.

Dr. C. H. Baker, Cleveland, Ohio. I have used the injections in combination with the accepted methods of treatment and had excellent results in a number of cases, especially of Interstitial Keratitis and Central Choroiditis.

Dr. Dunbar Roy, Atlanta, Ga. I have found this method of treatment of service in my hospital work where I have to deal with, mainly, colored people. It is cheaper than dispensing medicine and I am sure the remedy is being used.

Dr. Bernstein. I have had no experience as yet with relapses. Of course neither atropia nor general treatment are to be left out in iritis.

A Case of Ectropion of the Upper and Lower Eyelids.

Dr. F. C. Hotz, Chicago Ill.

"The patient was a boy of fourteen with complete Ectropion

of the upper lid of the left eye and both lower lids, the result of caries of the orbital margin when four years old. Operation on the upper lid, only of interest. I made a skin flap from the cicatricial skin in the vicinity of the upper lid and fastened it with sutures. The wounded surface above was then covered by a flap from the temporal region. The operation supplies the lid with a thin light skin, which adopts itself to the configuration of the lid, and does not restrict its movement. The new lid skin being fixed to the tarsal cartilage makes it independent of tissue contraction."

Report of a Case of Detached Retina, Occurring in Chronic Bright's Disease.

Dr. L. F. Lane, Philadelphia.

"C. D., female, 54 years of age, applied for treatment October, '92. Had always enjoyed good health. Lately slight headaches and dyspnoea on exertion. Mother of five children; no miscarriage. Manopause at 46. Four years ago her vision failed suddenly in the right eye. About two weeks ago she noticed dimness in the left. Present condition R. E. V., fingers at 10 inches. L. E. V. 20/70. Ophthalmoscope R. E. Fine floating opacities in the vitreous, nerve atrophic, general retinal oedema and detachment above and below. L. E. Lens hazy. Disk red gray. Haemorrhagic extravasation in macular region and a few white plaques above the disk. Urine, specific gravity 1018, albumen, hyaline casts, pus cells and blood corpuscles. Under care of Dr. J. C. Wilson she improved in respect of headache and restlessness. When seen three years later, her condition was about the same as at first visit."

The Field of Fixation and Its Relation to Heterophoria.

Dr. Casey A. Wood, Chicago, Ill.

"The field of fixation of an eye includes all those points which the eye can successively fix, the head being completely at rest, while the limits of the field represents the extreme excursions of the eyes in all directions. What we desire to know in practice, however, is not the extreme limit of rotation of the eye, so much as its limit of observation, whether or not the various muscles alone and in combination are capable of making all the excursions required for the purpose of securing and maintaining single and binocular vision. These considerations led me to attempt to remedy what seems to be certain defects in the technique of determining the field of monocular fixation. The most

effective plan so far employed is the modified Landolt apparatus attached to the McHardy perimeter. I have found in this method though, that the long continued effort necessary is very fatiguing to the patient, and the results are thus badly influenced. Instead of using an object attached to the carrier on the perimeter arm I have used the simple device whereby the rotation of the globe in any direction can be easily and quickly measured. Four strips of paper printed on them words of two letters placed between as well as below, figures representing the degrees of latitude on the perimeter arc. These strips are together placed in position on the arm of the perimeter, the patient's head is placed in the primary position and he is asked to read the lower line as far away from the center as possible. He is then asked to give the figure above the word just recognized and try to read further out other words on the figure line. Each word represents one degree on the scale, and the number of words so read added to the previous figures gives the limit of the field in that direction. As each quadrant of the circle is passed over the slip is removed, showing a new one of different lettering. I feel justified in thinking that where carefully done the defective excursions, and often the special muscle, or muscles, can be detected by a glance at the perimeter chart."

Discussion.

Dr. G. C. Savage, Nashville: In my judgment the paper is one of great interest and importance, and I have not heard a paper for a long time that gave me as much pleasure.

Dr. D. S. Reynolds, Louisville, Ky. I appreciate the importance of the subject and the practical character of the paper and think we will all be better prepared to discuss it after having studied the paper in cold type.

Report of 100 Cataract Cases.

Dr. Lyman Ware, Chicago, Ill.

"When there is no disease of the eye aside from cataract and when the patient is reasonably tractable every operation ought to be a success." Dr. Ware reviews some of his cases, reports 5 per cent. of failures, and says that he favors thorough antisepsis with bichloride of 1-5000, a preliminary iridectomy in most cases and a large corneal section. A tabulated report of the cases goes with the paper.

Discussion.

Dr. W. T. Montgomery. Dr. Montgomery opposed the use of bichloride because of its irritating properties, and favored preliminary iridectomy only in exceptional cases.

Dr. A. C. Corr. I regard the preliminary iridectomy as so important and necessary to an ideal operation that if I were to have to submit to cataract extraction I should require this method.

Dr. J. A. White. I would endorse all that Dr. Ware has said and believe that if you are working only to secure to the patient every possible chance for vision, it is advisable to do preliminary iridectomy in every case.

Dr. H. B. Young, Burlington, Iowa. Dr. Young advocated the simple extraction.

Dr. G. C. Savage. The ideal operation in my judgment has not yet been perfected, that is the extraction of the lens in its capsule without iridectomy. At present I always start out with the intention of doing simple extraction, and always regret having to perform the combined operation.

Some Interesting Points Pertaining to Refraction.

G. C. Savage, M. D., Nashville, Tennessee.

The curved, colored protective glass has the effect of a concave lens though the planes of their surfaces are supposed to be parallel.

Let the convex surface of such a body have a six inch radius of curvature and the concave surface a radius of five and seven-eighths inches; the surfaces being concentric are one-eighth of an inch apart and parallel. The mathematical formula would be

$$(N-1)\left(\frac{1}{R}-\frac{1}{R'}\right)=\frac{1}{f}=.6\left(\frac{1}{5\frac{7}{8}}-\frac{1}{6}\right)=\frac{1}{f}=\frac{1}{.0021286}$$

therefore $f = 470$ inches,

and the lens is divergent. Hence if a plane glass be bent around a cylinder it results in an astigmatic lens. If bent around a sphere a symmetrical divergent lens. Since the part of the human cornea in front of the pupillary space has its two surfaces practically parallel, it can be readily seen that, if the refractive medium behind the cornea were the same as that in front, the cornea would so refract parallel rays of light as to make them divergent. The index of refraction of the aqueous being almost that of the cornea, the refraction by means of the convex surface of the cornea is maintained by the aqueous.

I have had a concavo-convex lens ground with the two surfaces the same radius of curvature and separated one-eighth of an inch in the center. Such a glass in effect is a plane glass. The mathematical formula for such a lens is:

$$(N\text{-}1)\quad \left\{\frac{1}{R}-\frac{1}{R}\right\}=\frac{1}{f}\ \text{but}\ R=6''\ R'=6''\therefore .6$$

$$\left\{\frac{1}{6}-\frac{1}{6}\right\}=\frac{1}{f}=0\therefore f=\infty\therefore$$

parallel rays will emerge parallel. Such a glass would not only serve to protect the eyes from light, but would also be incapable of exciting any ciliary action.

A third lens has a six inch radius of curvature and the concave surface has also a six inch radius; these two surfaces are separated one-fourth of an inch at center. Its effect is that of a plane glass. The mathematical formula would show that the focus of such a lens is also infinity. I suppose that even a wider separation of these two surfaces would still give us the effect of a plane glass.

Model of an Astigmatic Cornea.

This is intended to illustrate the refraction of an astigmatic cornea, its circular end representing that portion of the cornea immediately in front of the pupillary space. One of the two diameters of this circle represents the meridian of least curvature while the other represents the meridian of the greatest curvature. It is best to study an astigmatic cornea as if it were made up of a spherical and a cylindrical surface, each having its own radii of curvature, there is no point of such a cornea but that, extending from it, are two radii, one of spherical and the other of cylindrical curvature. As is well known, the radii of spherical curvature will all come to a common point, as represented by those wires that come together six inches behind the circle. The radii of cylindrical curvature will be in planes parallel with the plane of the meridian of greatest curvature, and the radii of each plane will come together in a line which is in the same plane with the meridian of least curvature. If the astigmatism be vertical, and according to the rule, parallel rays of light in the horizontal plane will be so refracted by the meridian of least curvature as to be brought to a focus. Parallel rays of light in the vertical plane, will be so refracted by the meridian of greatest curvature so as to be brought to a focus in front of the other. The rays of light refracted by each of these meridians will be in the same plane after refraction as before. If the eye be the right one and the meridian of greatest curvature be at 45°, the radius of cylindrical curvature or the outer extremity of the horizontal

meridian will rise above the horizontal plane, while the radius of cylindrical curvature for the inner extremity of the arc of the horizontal meridian will point below the horizontal plane. Parallel rays of light in the horizontal plane will not be in the same plane after refraction as before.

Bilateral Exophthalmos.

By Dr. H. B. Ellis, Los Angelos, Cala.

A very interesting case, but too long to report here.

A Contribution to the Question of Removal of the Lens in Myopia.

By Dr. Harlan, Baltimore,

Dr. Harlan reports the case of a woman aged 45 with progressive myopia which caused loss of vision in the left eye. When 13 years old the right eye was injured, traumatic cataract formed, the lens was absorbed and the vision in the right eye is now 20/50 without glasses and there is no fundus trouble apparent. Would an early operation have saved the left eye?

Under discussion, Dr. Casey Wood reported a case of a girl aged 16 upon which he had operated (removal of both lenses for high myopia) five years ago with good results.

Result of an Examination of the Children in the Public School of Baltimore.

By Drs. Harlan & Woods, Baltimore.

The plan pursued in making the examination was practically the same as that devised and published by Dr. F. Allport of Minneapolis, more than a year ago. Good results are reported and much benefit to the children is expected to be derived in the future.

Idiopathic Choroiditis.

By Dr. Adelaide E. Portman, Washington, D. C.

Dr. Portman called attention to a class of cases in which no specific taint could be discovered and to which the above name was applied to remove them from the suspicious class.

III. Abstracts of Papers read by title at Atlanta Meeting.

Some Experiments on Rabbits, Made With a View to obtaining a Stump for the Accurate fitting of Glass Eyes.

By J. Herbert Claiborne Jr., New York.

Dr. Claiborne describes a series of experiments, in which he

used a composition of glass wool and asbestos as an artificial vitreous. Other experiments were made using cotton, or sponge and his conclusions on the subject are as follows: "1st. The operation of enucleation does not leave in the socket enough of a prominence to permit of the accurate and comfortable fitting of glass eyes. 2nd. The operation of eviscerating while it leaves a better stump than the operation of enucleation, is open to obvious objections. 3rd. The operation of Dr. Mules is objectionable because it subjects the ciliary nerves to constant pressure between two hard surfaces. 4th. The implantation into the scleral cavity, of some soft yielding body, which will not degenerate, which can be rendered aseptic, which will not swell by imbibition, and which will not become absorbed, seems to be a rational procedure. 5th, Sponge, cotton asbestos, and glass wool is not tolerated in the scleral cavity of rabbits and probably would not be in man."

Treatment of Optic Nerve Atrophy by Mercurial Inunctions in Conjunction with the Hot Baths of the Hot Springs of Arkansas.

C. J. Short, Hot Springs.

"My conclusions, based upon 41 cases treated in this way are:

1st. That in those cases having only light perception, treatment is of no avail; but where there is any vision left the progress can be checked and if not below 20/200 we may expect benefit.

2nd. That the mercurial inunctions in connection with hot baths are always beneficial.

3rd. That unless the origin is from specific, blood or mineral poisons, the use of Kal. Iod. is more often harmful than beneficial and

4th, That strychnia as a rule is good only in cases of spinal origin."

Sarcoma of the Choroid, A Series of Cases.

By Geo. F. Fiske, Chicago.

1. E. B., aged 50, presented himself April 3rd, 1888, complaining of a cloud in the right eye which followed a severe attack of "catarrhal fever" three weeks before.

V. O. D., with correction, normal; V. O. S.=5/6 Sz.

In the left eye were several choroidal plaques in the upper outer periphery, and floating opacities in the vitreous. In the right eye separation of the retina on middle nasal side. Nothing

to distinguish it from ordinary separation of the retina. No suspicion of tumor.

Consultation with two other specialists, with no thought of Sarcoma. Patient stopped work for two weeks; protected the eyes from light, wore a bandage and remained in bed quite strictly, with no change. He then resumed his work to a certain extent, contrary to advice, and did not return to the writer until June 18th, when vision was reduced to perception of light, anterior chamber shallow, tension plus, pain and cyclitis. Diagnosis of Sarcoma. Eye was enucleated the middle of July and proved to be a Melano Sarcoma, patient dying within six months, result of Metastases in the liver; no recurrence at seat of operation.

2. G. A., aged 40, consulted me October 9th, 1890, having noticed for five weeks that sight in the right eye was imperfect.

with correction V R $= \frac{5}{8}$; V L $= \frac{5}{8}$.

Ophthalmoscope R. revealed a small separation of the retina on nasal side, showing the retina pushed forward by a small body, apparently one m.m. in diameter, extending diagonally over the papilla, not quite to its center. Diagnosis was made of Sarcoma of Choroid and immediate enucleation advised.

Enucleation performed after progress of growth, with plus tension February, 1st, 1891, and a choroidal tumor of five m.m. in diameter found of uniformly black color, composed of small spindle cells without reticulum and numerous large pigment cells. There was no recurrence in the orbit of the Sarcoma, but the patient gradually began to fail, and he died within eighteen months of "liver trouble." No post mortem.

3. Mrs. M. came September 16th, 1893, with poor vision in right eye for several months. Vision equals fingers in the outer field at two feet.

Separation of retina involving all but outer upper and inner upper portion of the retina; Optic nerve not visible. No tension and no Iritis or Cyclitis. Media clear and the retina apparently pushed forward by a large dark, rounded mass, growing from the outer central portion of the Choroid.

Diagnosis—Melano Sarcoma. Enucleation September 20th. The tumor was round, seven m.m. in diameter, not extending to the papilla, composed of spindle cells, round granular cells, and pigment cells. Optic nerve showed no infiltration nor did specimens from the connective tissue of the orbit. January 1st, 1896, there had been no recurrence, patient in normal condition.

4. E. C., aged 56, came November 6th, 1893, with history

of poor vision since May, 1893, in right eye. Old corneal scar from blow with a marble at 10 years of age. Counts fingers at five feet. Separation of the retina nearly complete except in upper inner quadrant. Ophthalmoscope reveals a mass reaching nearly to the iris in front, growing from the outer upper portion of the field, covered by the retina, still showing the retinal vessels. Enucleated (diagnosis of Sarcoma of choroid) November 17th, 1893. Tumor four m.m. diameter, six m.m. from Papilla, had a very small base and was a spindle celled Sarcoma with some pigment. Patient's condition January 30th, 1896, good, health excellent, with no sign of recurrence.

5. C. K., age 48, friend, consulted me November 28th, 1893, vision good, found a small tumor on nasal side, near the macula, with retina pushed forward only in region of and adherent to the tumor.

Diagnosis Sarcoma. Patient lost a brother from Carcinoma of tongue. Eye enucleated December 5th, 1893. The tumor is almost spherical in shape, and is composed of spindle cells of the medium size spindle celled sarcoma with a minimum amount of basement substance. The vascular supply is quite abundant. There are pigment granules throughout, but it cannot be regarded as a melanotic Sarcoma. February 29th, 1896, patient's health perfect, no sign of recurrence. Certain questions present themselves: First. The question of early diagnosis between ordinary detachment of the retina, and the separation of the retina which is caused by a tumor behind it. Second. The question as to whether enucleation shall be advised in cases where the diagnosis is not certain. Third. The importance and the duty of assisting one another by giving to each patient, in all cases of doubt, i. e., in almost all cases of Ablatio Retinae, full notes and sketches for use when patient consults other specialists, which is usually the case.

I would suggest enucleation be advised where:

A. The vision is destroyed and there is doubt as to the presence of a tumor.

B. Where, though there is slight vision present, it is failing rapidly through extension of the separation, and there are no previous examinations by colleagues, excluding the presence of a tumor, with no good reason for excluding it from the history of the case.

C. Where glaucomatous symptoms show themselves or Cyclitis or Irido-cyclitis.

The Value of Homatropin in the Diagnosis of Ametropia.

By Dr. Edward Jackson, of Philadelphia.

Dr. Edward Jackson, in a paper based on fifteen years experience with this drug and the constant comparison of its effects with those of other mydriatics, stated that the proportion of cases in which he failed to get complete paralysis of accommodation with homatropin was smaller than with either of the stronger drugs of this class. This was believed to be due to the mode of application. The homatropin had always been applied by himself, repeated instillations being made with a 2 to 5 per cent. solution, one drop being placed on the upper margin of the cornea every five or ten minutes until four or six instillations had been made, and the refraction measured within two hours afterwards. The other mydriatics were commonly prescribed to be used at the patient's home, and were often inefficiently applied.

He also found that the therapeutic influence which justified the use of a mydriatic in many cases of eye-strain, was possessed to a large extent by homatropin, and after the use of this drug a rapid recovery largely avoided the danger of eye-strain during the period of weakened accommodation. He, therefore, employed it except in those cases which showed marked tissue changes in the retina and choroid requiring considerable time for their resolution. Its great advantage was the brevity of its action. Recovery occurred in less than one-half the time required after any other mydriatic, and in one-third or one-fourth of the time required after the use of atropin.

The objection to the use of a mydriatic on account of the danger of systemic poisoning was much less with homatropin than with any other drug of its class, although in a few cases appreciable disturbance had arisen. There was also less danger of its causing permanent damage by glaucoma or giving rise to conjunctival irritation than in the case of the other mydriatics. The redness commonly seen after the instillation of homatropin was not a symptom of conjunctival irritation, but a temporary hyperemia occurring during the absorption of the drug, which involved most markedly the deeper and pericorneal vessels.

The objection to the greater cost of homatropin, and the increased labor by reason of the necessity for the surgeon to apply the drug, had some weight with regard to hospital work, but was scarcely to be considered in ordinary private practice.

Sponge Crafting in the Ordit for Support of Artificial Eye,

By E. Oliver Belt, M. D., of Washington, D. C.

To a skilled oculist the ordinary enucleation of an eye-ball is one of the simplest operations he is called upon to perform, and yet there are some cases in which so much of the conjunctiva is destroyed by careless or ignorant operators, that it is impossible for an artificial eye to be worn afterwards. This is very

annoying to a patient and we cannot blame him if he never forgives the doctor who has so afflicted him. Such cases emphasize the fact that it is the duty of the surgeon not only to operate skillfully for the immediate relief desired, but he should do everything in his power to prevent disfigurement, and when an organ or limb cannot be restored to usefulness, he should at least obtain the best cosmetic results possible. After an eye-ball has been removed and an artificial eye inserted very frequently it is not as prominent as the good eye. It has a sunken appearance which attracts attention at once to the fact that the eye is artificial. To remedy this defect has been a problem for ophthalmologists for years.

One of the most satisfactory operations heretofore practiced is that known as Mules' operation, which consists in the evisceration of the contents of the eye, and the insertion of a hollow glass globe in the sclerotic. This is sewed in, and proves fairly satisfactory, but there is some danger of the globe being broken, and occasionally the stitches come out and the globe escapes. There is also the risk of sympathetic ophthalmia where the entire eye-ball is not removed.

To obviate these difficulties and at the same time secure a full orbit I have devised a method of sponge grafting which seems to meet the requirements without the disadvantages of other methods.

The operation is a simple one and is performed as follows: The eye-ball is removed by the ordinary method under strict asepsis. After all hemorrhage is arrested the socket is washed out with Formalin solution 1 to 1000, followed by sterilized salt solution. A globe of fine, soft, sponge about three-fourths the size of the eye-ball (previously sterilized in five per cent Formalin solution and rinsed in the salt solution) is then inserted into the socket, or capsule of Tenon. The conjunctiva is brought together and sewed with rat-tail sutures. The eye lids are then closed with compress and bandage. In a few weeks the sponge is filled with new tissue, which in time becomes firm, solid flesh, making a full orbit and a fine support for the artificial eye. The sponge fibres are apparently absorbed.

I have performed this operation in five cases with fairly good results in all, but union of the conjunctiva has not been firm enough to prevent some of the stitches from breaking or cutting out and the wound gaping. In future cases, to relieve this strain on the conjunctiva and to obtain good motion of the eye, I think of uniting the opposing recti muscles with rat-tail sutures, and then the conjunctiva over that by the purse-string or subcutaneous suture. By this method we should get union by first intention, good motion of the stump, and a full orbit. There seems to be no danger from infection of the sponge for in two cases the eye was removed for panophthalmitis. Not only has this operation advantages over other methods in recent cases,

but in old cases, in which the eye was removed months or years ago, when there is this sunken appearance of the artificial eye, the socket might be re-opened and a sponge inserted.

Since making my investigations I find that Prof. D. J. Hamilton, of Edinburgh, practiced sponge grafting for old ulcers in 1880, since which time a few other physicians have tried it in fresh wounds and some other similar conditions that skin grafting has been used in. However, I cannot find in all the medical literature in the Library of the Surgeon General's office any mention of sponge being used as I have suggested and tried.

Causation and Management of Glaucoma.

By Dr. Leartus Connor of Detroit, Mich.

The author concluded as follows:

1. Glaucoma is a disease rather than a deformity like hernia or astigmatism.

2. The disease glaucoma, has two distinct factors; one inducing changes of the connective tissues of the body including the outflow spaces of the posterior chamber of the eye; the other so altering the secretion of the posterior chamber, that it clogs the crippled outflow connective tissue spaces.

3. The first factor results from the long continued action of dirty blood upon the connective tissue elements of the outflow spaces; the second from a variety of conditions acting through the nervous, vascular, digestive, and muscular systems, or through eye strain as in uncorrected presbyopia or astigmatism or from intraocular tumors, dislocated lens, or from the use of mydriatics.

4. Dirty blood may result from many distinct diseases, as gout, rheumatic gout, syphilis, or from chronic overloading of the body with food in excess of its assimilative power.

5. In Simple Glaucoma the connective tissue at the optic papilla is so attacked as to cause an excavation of the optic disc. If the anterior outflow space remains patent, there may be no symptoms except the diminishing field of vision, and the excavation, but if the anterior outflow becomes obstructed, increase of tension and other glaucomatous symptoms appear.

6. In Acute Inflammatory Glaucoma, the anterior outflow spaces are suddenly closed, inducing all the phenomena of a glaucomatous outburst.

7. In Sub-Acute Glaucoma, the obstruction to the anterior outflow is less sudden and complete, and hence the symptoms are less severe and startling.

8. In Chronic Inflammatory Glaucoma, the obstruction is more complete and permanent, and so the results are more hopelessly destructive—absolute glaucoma marking the final stage, when the eye becomes totally lost to vision.

9. In Hæmorrhagic Glaucoma, the outburst is complicated

by rupture of rotten intraocular blood vessels, so that hope of relief is slight.

10. In Secondary Glaucoma, the same obstruction to the outflow channels occurs from a variety of causes, as intraocular tumor, dislocated lens, lens swollen after decision, occlusion of the pupil, etc.

IV. Abstracts of some of the papers not presented at the Atlanta meeting. Specially abstracted for the ANNALS.

Some Cases of Acute Choroiditis in Young Adults.

By Hiram Woods, M. D., Baltimore, Md.

The paper presented the causes of choroiditis as given in standard text books; dwelling upon the claims that syphilis is the most common, and that often no cause can be found. Seven cases of Acute Choroiditis were narrated. Five were undergoing the first attack while in the other two there were such evidences of previous inflammation, as atrophic spots and pigment deposits. In all, syphilis was positively eliminated. Four of the cases occurred in young women. In three, aged respectively 21, 22 and 27, the appearance of the choroidal exudate with vitreous clouding was synchronous with suppression of menses. In the fourth an examination of the eye during an attack of purulent conjunctivitis at age of 13 failed to show intra-ocular disease. Two years later when the patient applied for refraction examination, a spot of peripheral choroidal atrophy was discovered. Central vision was 20/20. Between first and second examinations menstruation had appeared. This patient is now 23 years of age. The author has observed in her two attacks of relapsing choroiditis with floating bodies and muddy vitreous, vision being reduced to 20/40. Each relapse has appeared during menstruation. The other three occurred in men, aged respectively 25, 27 and 33. In one the exudate was at the foveae and resulted in permanent central scotoma. He was in perfect health with the exception of having a tape worm, to remove which, numerous unsuccessful attempts had been made. The second was a victim of chronic dyspepsia, compelling frequent washing out of the stomach, and accompanied by obstinate constipation. In the third, no associated disturbance could be found. Two of these patients still have defective vision from cloudy vitreous; but in each the exudate is peripheral. So it was with all the

others, except the man mentioned above. They have recovered with normal central vision. Mention was made of the danger of relapse, and the fact that more or less defect in vision, according to the nearness of the exudate to the foveae is a usual result of the disease. One frequently finds evidences of old peripheral choroidal disease in patients who are unaware of having had eye trouble. In acute choroiditis we should carefully search for associated troubles, directing special attention to digestion, urinary, and if patient be female, menstrual functions. Such observations would probably reveal a sufficiently frequent association of choroiditis and other affections to give the latter causative significance. Cases which could thus be rescued from the "Idiopathic" variety would possess rational therapeutic indications for prevention of relapse.

A Case of Chloroma.

By Dr. S. C. Ayres, Cincinnati. O.

This rare case came under my care because the neoplasm had invaded the orbits and produced a marked exophthalmus.

In the American Journal of Medical Sciences for August, 1893, appears a paper entitled "Chloroma and its relation to Leukaemia," by Dr. George Dock, of Ann Arbor, Mich., in which he reports a case. He has collected, including his own, seventeen cases of chloroma. The question of the relationship of chloroma to leukaemia is discussed in a most critical manner and a summary of the views of all the leading observers given. The pathological changes, macroscopic and microscopic are fully explained and the alterations in the blood corpuscles dwelt upon in a masterly manner.

Edward Ludwig, age 7, was admitted to the Ophthalmic Hospital, May 18, 1893. Parents and five other children living and in good health. Has always been a bright intelligent boy and has never suffered from any serious illness. Has had repeated attacks of parotitis (?) and the present trouble seems to have followed one of these attacks about four weeks ago. He at first complained of pain in both orbital regions and at the same time both eyes seemed to be more than usually prominent. After a week or more his mother noticed some impairment of his hearing, which slowly increased. The exophthalmus increased more rapidly and excited alarm. He became very weak and somewhat emaciated, and complained of a very severe pain in the left foot, on account of which he was unable to walk.

Upon his admission into the hospital both globes were very prominent, but the right one more so than the left. It was with

difficulty that he could close the lids of the right eye over the ball. The corneae are clear and there is no impairment of vision. The conjunctivae of both eyes are red and chemotic. The motility of the eyes is unimpaired. In the upper and outer portion of the right orbit can be felt a dense, inelastic growth, which protrudes beyond the edge of the bone. A similar growth can also be felt in the left orbit, but not so pronounced. The optic papillae are somewhat pale, but there are no other alterations in the fundus of either eye. His hearing is so much impaired that he has to be spoken to in a loud tone. Heart's action rapid, pulse 120 per minute; temperature normal. There is no lesion of any of the crainial nerves. Muscular power and sensation of both upper and lower extremeties normal. Pressure on the sole of the left foot produces pain, but there is no redness or swelling in this locality.

May 21. Proptosis of right eye increased, left slightly less. There has developed a swelling in both temporal regions. It is rounded and elastic, without any sensation of fluctuation.

May 23. Protrusion of both eyes increased; corneae hazy and covered with inspissated mucus.

May 27. Temperature normal; pulse 120. Patient complains of some difficulty of micturition; later on, retention of urine. Both corneae are quite opaque. Swellings in temporal regions more pronounced. There has developed a hard, firm swelling in the region of each parotid gland. Intelligence good; hearing somewhat improved. Pain in foot still present. No appetite. The exophthalmus of both eyes increases day by day. Both globes are now forced beyond the palpebral fissure.

June 2. Condition worse in all respects. He has had a severe hemorrhage from the conjunctiva of the right eye.

June 5. Died this morning as result of hemorrhage from the conjunctiva of the right eye.

Examination of the blood made by Dr. J. E. Greine three days before death. Blood pale and watery. Marked increase in the number of white blood corpuscles, due principally to the number of multinuclear cells, while the small lymphocytes and those white cells characteristic of splenic and myelogenic leukaemia are not increased. Eosinophile cells not above two per cent. The examination of the blood at this time justified the diagnosis of leucocytosis only and not leukaemia. Furthermore an examination of the patient revealed no general enlargement of the lymphatic glands, only those of the neck being enlarged.

Post-mortem 24 hours after death.

Marked swelling of the lymphatic glands about the neck.

Both eyeballs protrude to such extent that they are only partly covered by the eyelids; sloughing of both corneae. Traces of blood about the eyes, mouth and nose. Mucous membrane of mouth swollen; teeth covered with blood.

Lymphatic glands are firm and resisting; no fluctuation. Small nodular infiltration over right parietal bone near median line, which was found to be situated beneath the periosteum, the bone at this point being very thin. Pia and brain normal; the latter intensely anaemic. Both orbits were filled with a firm, solid and somewhat elastic mass of a light greenish color which pushed the eyeball forward and upper wall of orbits upward. The tumor extended to the sphenoidal fissure, surrounding but not involving the optic nerve. The cancellous tissue of the sphenoid and the petrous portion of the temporal bones were softened and infiltrated with a dirty greenish yellow fluid, looking very much like pus. The lymphatic glands presented the same appearance on section as did the tumors of the orbits.

On placing the tumor in alcohol, the color disappeared entirely within 12 hours, but a specimen kept within a tightly corked bottle, to this day still retains the greenish color. The fresh fluid from the interior of the sphenoid bone presented large numbers of small corpuscles, fat globules and granular detritus.

The tumor, hardened in alcohol and ether, showed small round cells, very few spindle cells, and remarkably little intercellular substance; no blood vessels but numerous lymph spaces.

The seat of the tumor, the peculiar color, the history of the growth, the remarkable involvement of the lymphatic glands, the results of the microscopical examination all indicate a case of chloroma, cancer vert, the "green cancer" of the French.

Whether this form of tumor is a sarcoma, or whether, as Dock claims, it is a condition arising in the course of true leukaemia, is undecided.

Epistaxis is mentioned as occurring in some cases of chloroma reported. In Ludwig's case there was severe hemorrhage from the conjunctiva of the right eye the day before he died, and then on the following day recurred with such violence as to destroy life.

The eyes were carefully examined and there was found no swelling of the optic discs, no retinitis. The discs looked rather pale and anaemic but not atrophied.

Dock says, "From what we do know of the natural history of leukaemia and chloroma we can see the analogies of the diseases. We can say that chloroma is a lymphomatous process similar in its clinical features to leukaemia and pseudo-leukaemia. Our

ignorance of its precise relation depends partly on the fact that our knowledge of chloroma is very incomplete, partly on the indefinite nature of leukaemia and pseudo-leukaemia.

Gonorrheal Conjunctivitis:—Its Treatment.

By Louis J. Lautenbach, M. D., of Philadelphia.

Blenorrhoic conjunctivitis is the cause of more than one-tenth of all the existing blindness and is responsible for one-fifth of the cases of partial loss of sight. The gonorrhoeal form in the adult is less common than ophthalmia neonatorum, but it is none the less virulent and its results are too often most serious.

The bad results following upon a case of gonorrhoeal conjunctivitis, can usually be attributed either to first, the usual indisposition of the patient to admit the truth of the cause of his trouble or his want of knowledge thereof, with the consequent delay in treatment; second, the rapid progress of the disease with the consequent swelling of all the tissues in and about the eye occasioning destruction of important eye structures both by pressure and interference with the circulation and nutrition of the parts; third, a want of thorough cleansing; fourth, a want of proper treatment.

The need of thorough cleanliness is apparent, but the method of its accomplishment may not be so clear. Cleanliness in such cases means the effective removal of all the discharges on the conjunctiva and in the folds thereof and the decomposition and removal of all the discharges and gonococci which may lie in the various minute fissures and crevices between the epithelial cells of the superficial layers. In fact in these cases cleanliness must be considered the most important part of the treatment. Many cases get well without other treatment.

My plan is to first wipe off the lids and any discharge which appears between them, with a piece of absorbent cotton saturated with a 3 per cent solution peroxide of hydrogen. I invariably use the Oakland peroxide on account of its comparative purity and freedom from acidity. I then instil between the lids with a pipette about 20 or 30 drops of the same solution or use it as a spray and continue this until there is little or no bubbling. I then evert the upper lid and instil into the opened up palpebral folds more peroxide and then wipe the parts with absorbent cotton wet with the solution. I then take the lower lid and treat it in the same way being sure to thoroughly cleanse the cul-de-sac. I then replace the lids and gently rub the ball through all parts of the lids so as to more thoroughly cause decomposition of the

discharges. I then take a saturated solution of boracic acid and repeat with all the manipulations described above in connection with the peroxide solution, doing this very thoroughly and using the solution liberally. In addition to this the patient is to have his eye thoroughly cleansed by the nurse with a saturated solution of boracic acid at least every hour and in some cases, every half hour.

The medicine of most value in these cases is undoubtedly the solution of nitrate of silver of a strength of from 10 to 60 grains to the ounce—the more severe and active the inflammation the stronger the solution—to be applied thoroughly with a cotton-wound probe (never with a brush) over the palpebral conjunctiva, carried into the cul-de-sac and then to the ocular conjunctiva carefully avoiding the cornea. This application is to be made once or twice a day as necessary and is to be followed by the instillation of 4 or 5 drops of sweet oil. In addition to this personal application a 1 or 2 per cent. solution of nitrate of silver is to be instilled into the eye by the nurse from 2 to 4 times a day.

If chemosis be present, I incise the conjunctiva in numerous deep radiating lines.

In addition to the above, I use ice bags and iced cloths whenever the inflammation is peculiarly virulent and use atropia or eserine locally whenever I have corneal involvement, the choice depending upon the tension of the ball as well as the location and extent of the ulceration and the general constitutional peculiarity of the patient—in the rheumatically inclined, all other things being equal, I always prefer to use eserine.

Since instituting this method some 7 years ago, I have not had a single unfortunate result. During my three years service at the German Hospital, I obtained perfect results with normal vision in each of the 18 patients there treated. In private work my results have been equally good. I attribute these good results more to the thoroughness of the cleansing, especially the clearing out of the cul-de-sac, than to all else.

The Use of Caustics for Epithelioma of the Lids.

By Frank Trester Smith, M. D. Chattanooga, Tenn.

The following case came under the author's observation:

F. S., age 64. At the age of 43 had the right eye destroyed by an explosion. The ball was shrunken and the lids adherent so that the eye was entirely useless.

The left upper lid presented an ulcer about $\frac{1}{3}$ inch in diameter covered with a dry scab. On the inner and outer sides there ap-

peared to be a blister. The trouble began twelve years ago from a small scab which was picked off from time to time and the ulcerated surface had gradually grown larger. A few days before some empiric had made an application which had caused the ulcer to double in size after which the borders had become blistered. A soothing application was prescribed, but the bases became hard and the contents gelatinous. The case did not improve after several weeks of treatment. The diagnosis of epithelioma readily made and an operation consisting of the total removal of the inner half of the lid and supplying its place by a plastic operation, advised. While preparing for operation the patient fell into the hands of an empiric who, by means of some caustic apparently destroyed the pathologic growth and it was replaced with a smooth cicatricial tissue leaving the lid intact and much more useful and ornamental than any plastic surgery could have devised.

The case suggests in some cases of epithelioma of the lids, that caustics should be used. In this case the pathological tissue extended so as to require the removal of the entire thickness of the lid by any cutting operation and any surgeon would certainly have removed at least half the lid and even then there would very likely have been a reappearance of the tumor. All this was almost entirely removed, and the lid left in good shape with the loss of a remarkably small amount of tissue by the use of caustic in unskilled hands. It can but suggest that if the caustic had been carefully and thoroughly applied the cancer cells would have been thoroughly destroyed.

Dr. A. R. Robinson of New York called attention to the advantages of the use of caustics in the treatment of cutaneous epitheliomata, and recommended a solution of chloride of zinc in a twenty per cent solution of cocaine.

The advantages of the caustic over the knife are that there is less destruction of tissue and with the destruction of the same amount of tissue the result is surer because the necrosed tissue is surrounded with an inflammatory zone and the products of the inflammation tend to destroy the pathological cells for a distance beyond the part destroyed. This is the more likely to be the case if the wound is allowed to suppurate as it is generally conceded that the toxine of germs which produce suppuration are destructive to the cells of epitheliomata.

Some of the caustics have an elective action on the cancer cells. This is notably the case with arsenious acid which should be used weaker than in Marsden's paste, say three parts of acid to two of gum acacia. This is said not to attack normal tissue for

twenty hours. It is believed that by having the case under constant observation during the application that caustics can be used safely on the lids in many cases to the advantage of the patient.

Report of two Cases of Excessive Hemorrhage After Enucleation of rhe Eyeball.

By Dr. Robert Sattler of Cincinnati, O.

The danger of excessive hemorrhage after enucleati bulbi is ordinarily a matter of little concern.

In most cases the application of a compress bandage or a compress applied and held in position by the surgeon or an assistant for a few moments after the operation is completed, controls and averts unnecessary bleeding.

That hemorrhages so excessive and uncontrollable as to endanger the life of the patient from shock and loss of blood, can occur even after this operation, so simple in technique, and by common consent considered almost devoid of dangerous sequences is supported by reports of two cases recently observed.

In every case of enucleation of the eye-ball done by the writer, in addition to rigid aseptic precautions before and during the operation, irrigation of the empty orbital cavity with hot sterilized water, 1 to 10000 Bichloride Sol. or Biniodid Sol., with the least possible traumatism is resorted to immediately after the operation is completed. After this a compress is held against the closed lids for a short time by an assistant, or a compress bandage is applied. This is done as a safeguard against hemorrhage and possible sepsis.

In those cases in which the bleeding is unreasonably profuse, after the severing of the optic nerve and surrounding blood vessels, or straining and vomiting from the anaesthetic, occurs during or immediately after the operation, the index finger is introduced into the apex of the orbit and firm compression against the ophthalmic artery or its principal branches is made until it is arrested.

After this a compress bandage is applied and the patient watched for several hours by an assistant or trained nurse.

This simple after treatment, guarding against other complications and hemorrhage and so generally adopted by ophthalmic surgeons, has always proved itself effectual.

The writer has had several exceptional experiences of copious hemorrhage but all were controlled after four or five hours, with little difficulty. In two cases bleeding continued for twenty-four hours and was finally arrested only by the introduction of hot

antiseptic tampons into the cavity and secured by compress and bandage after all other measures had been exhausted. A sharp attack of cellulitis orbitae followed, but recovery after the subsidence was uninterrupted.

In another case the hemorrhage was unusually free and persisted for many hours in spite of compression with bandage and hand. The use of hot water and hot compresses did not influence it favorably. After all other measures had failed, ice was introduced into the orbital cavity and arrested the bleeding.

Owing to the discomfort and pain, not to mention greater liability to cellulitis attending the introduction of tampons ice, styptics, etc., to arrest exceptionally profuse hemorrhage, these measures are only justifiable in extreme cases.

It was resorted to in the case referred to only after all other methods had been faithfully tried and had yielded negative results and the patient had become exhausted and frightened.

Before tamponade was resorted to the digital compression had been tried repeatedly and the orbital cavity emptied of its clots many times and pressure with hand or bandage had been persistently done.

The sitting posture and absolute quiet was invariably enforced. Salines and ergot administered.

In these three cases the hemorrhage was not arrested until tampons were introduced and compression made in addition, but there was not in a single instance any intimation of a possible serious termination. Syncope occurred several times, from fright in one case, and marked cellulitis orbitae and prostration resulted in the second case, but aside from a longer confinement in bed, than is usual, marked and more persistent ecchymosis and swelling of lids, no serious sequence could be ascribed to the operation.

In none of these cases could a hemorrhagic tendency be established, either individual or hereditary, nor did the patients belong to families in which haemophilia had shown itself in remote branches.

Dr. Sattler had always believed that even in a bleeder the hemorrhage following or attending the removal of an eye could with the methods of compression, etc., at our command, be controlled without much trouble. His experience with one of the cases reported taught him otherwise.

In mentioning the possible dangers to the parents of my patient, he stated that the only real danger incurred was from the anaesthetic, and that the danger from cellulitis, meningitis or hemorrhage deserved, because of their extreme rarity, little or

no consideration, and that hemorrhage could always in this locality be speedily and effectually controlled. The result of the operation and subsequent developments reversed all his former experiences. The complications of hemorrhage, considered by common consent and experience so insignificant, became so obstinate and uncontrollable, that a fatal termination seemed for several days almost inevitable.

V. Report of Special Committes, with Discussion.

Optic Nerve Atrophy.

Report of Chairman, Dr H. V. Würdemann, of Milwaukee—*Case of Optic Nerve atrophy of obscure origin occurring in General Diseases.*

"Optic nerve atrophy occurs in general diseases usually as the direct result of their toxines causing inflammation with the resultant interstitial changes, or, through necro-biotic changes in the blood vessels affecting the nutrition of the nerve and retina. A certain proportion of cases are due to trauma and to lesions which cause pressure on the nerve, or interfere with its nutrition through ambolic processes. I think in the majority of cases it is possible to demonstrate a sufficient exciting cause."

Optic Nerve Atrophy From Toxic Agents.

Dr. G. E. DeSchweinitz.

"The baneful influence of certain toxic agents falls particularly upon the papillo-macular tract and there results an augmentation of nuclei, and hypertrophy of the connective tissue and a wasting of the nerve fibres, the process being most intense according to Sachs, in one small area which he calls the nuclear group. There is in fact an interstitial sclerosis in every way comparable to the pathologic processes in interstitial hepatitis. Tobacco is facile princeps among deleterious agents, but similar amblyopias may be produced by alcohol, stramonium, canabis indica, chloroform, opium, bisuphide of carbon, nitro benzol, etc. Pure cases of toxic amblyopia are distinct from retrobulbar or axial neuritis. While the lesion in tobacco amblyopia is assumed to be similar to that found in mixed cases we are not yet in possession of an autopsy to prove it.

Optic Nerve Atrophy of Obscure Spinal Origin.

Dr. G. Dunbar Roy, Atlanta, Ga.

A review of cases reported showing the relation which exists between optic atrophy, atrophy and such diseases as meningitis locomotor ataxia, multiple sclerosis, lateral sclerosis, trophoneuroses, chorea and injuries of the spinal cord.

Differential Diagnosis Between Simple Glaucoma and Optic Nerve Atrophy.

Dr. B. Alexander Randall, Philadelphia, Pa.

As a rulè such a diagnosis, of course, gives no difficulty, but Dr. Randall showed by pictures thrown on a screen that cases do exist in which the most expert ophthalmologist might be puzzled to determine the difference.

Discussion of Optic Atrophy.

By Casey A. Wood, M. D., Chicago.

Dr. Casey Wood.—Dr. Wood thought that alcohol was more likely to be the principal cause of simple atrophy, in mixed cases of toxic amblyopia than is tobacco, because we know how frequently it produces true nerve atrophy elsewhere in the body, while tobacco rarely does so.

Dr. G. C. Savage.—Dr. Savage thought that there should be no difficulty in deciding between glaucoma and atrophy in any case.

Dr. Baker and Woods reported cases of tobacco amblyopia. Dr. Baker spoke of sunstroke as a cause of atrophy and Drs. Hobby and Short related cases due to injury.

Report of Committee on Retinal Detachment.

Etiological Factors Other than Myopia.

By H. O. Reik, M. D., Baltimore.

Of all cases of retinal detachment, between 40 and 50 per cent. occur as the result of high degrees of myopia, with the severe choroido-retinal changes that attend this refractive condition. In a study of the other 50 or more per cent. we must attribute their origin to a variety of causes. The first in frequency is trauma. Any severe blow or injury about the head may produce detachment, and in an eye predisposed by choroidal or retinal disease to detachment a very slight injury may produce serious

consequences. The next largest number of cases are the result of pathological conditions of the choroid or retina produced by those diseases of the kidneys which may be grouped under the general title of albuminuria. The anatomical seat of the eye lesion in this disease is probably the blood-vessels, and from the cases reported it would appear that among renal causes the most frequent is what is known as the small granular kidney.

The class of cases offering the most favorable prognosis are those occurring in the albuminuria of pregnancy, for here, if necessity arises, the cause of the disturbance may be removed and there is then a remarkable tendency to spontaneous recovery. The following case of retinal detachment is especially interesting as having occurred during labor. The woman was the mother of eight children and had always had easy labors. Just before the birth of the ninth child her physician made a thorough examination of her urine, but did not discover anything abnormal. The labor was an exceedingly painful one and lasted for twenty-four hours. At the height of one of the pains and just after she had made a violent effort she noticed that everything became black before her right eye. When seen a few days after the labor there was nearly complete detachment of the retina of the right eye, the left being quite normal. The violent efforts and straining which she was constantly making led to a rupture of one or more of the retinal vessels, which discharged their contents beneath the retina and forced it away from the choroid.

A few cases of detachment have been reported as due to diabetic retinitis, but such cases are extremely rare. Among other causes are syphilis, sympathetic ophthalmia, sunstroke, erysipelas of the face, neuralgia of the fifth nerve, sub-retinal hemorrhage or seropurulent exudates such as occur in purulent choroiditis tumors in the choroid or retina, and a cysticercus developing beneath the retina. Despite the greatest care taken, however, in examining our cases, there still remains a large percentage of them in which no cause for the lesion can be ascertained.

The pathology of this affection has not been satisfactorily explained. The Leber-Nordenson theory, which is the most generally accepted to-day, has, like all those which have preceded it, its weak points.

Though the immediate cause of displacement is so obscure, it is probably safe to say that the vitreous is always the seat of pathological alteration, though such changes may not be, and often are not apparent upon ophthalmoscopic examination.

The Anatomical Changes in two Cases of Retinal Detachment.

By R. L. Randolph, M. D., Baltimore.

I have selected these two cases as being fairly typical of the two principal conditions leading to detachment of the retina. The first was a spontaneous detachment due to fibrillary degeneration of the vitreous, and in the second a small round-cell sarcoma led to propulsion of the retina from the choroid. The chief points in the pathological anatomy of the first case were, first, the widespread atrophic degeneration of the retinal layers, and especially of the layer of rods and cones—as a general thing the granular layers were the only ones that were preserved; second, swelling of Muller's fibres; third, the presence of albuminous drops in various localities, and especially between the choroid and retina and along the neck of the detachment; and finally, the transformation of the vitreous body into fibrillae. In the second case the principal changes were the conversion of the vitreous body into fibrillae and the atrophic degeneration of the anterior portion of the retina.

It would seem, then, that fibrillary degeneration of the vitreous body is to be found in both classes of cases. In the case of spontaneous detachment it was evident that the fibrillae were largely concerned in pulling away the retina from its normal position; and, from the arrangement of the retinal folds, shrinkage or contraction from within must have been going on. In this case there was a considerable exudate consisting of layers of albuminous drops resting on the membrana limitans externa, which exudate no doubt played a part in separating the retina from the choroid. In the second case the presence of the sarcoma was sufficient to lift the retina from its position, though even here it was evident at a glance that the retina was subject to a force from within which helped to pull it still further away from the choroid. No rent was discovered in the retina in either case.

In conclusion, then, I may say that the most striking anatomical change in these two cases was the fibrillary degeneration of the vitreous body, a condition which I think is found to a greater or less extent in every case of retinal detachment, and which no doubt is the chief element in the pathogenesis of the disease.

Electrolysis in the Treatment of Detached Retina.

By W. T. Montgomery, of Chicago.

Within the past few years numerous remedial agents have been brought forward and advocated with more or less enthusiasm for

the treatment of detached retina. One of the fullest and most encouraging reports on the application of electrolysis in detachment of the retina is by Dr. Terson, who reports twelve cases so treated, with one recovery which had lasted nine months, and five improvements which had persisted for from two to nine months.

Within the last six months four cases have been treated in the Illinois Charitable Eye and Ear Infirmary, the treatment, in the main, following the recommendations of Dr. Terson. Positive electrolysis was used. The eye was punctured by the strong platiniridium needle at some point of the sclerotic corresponding to the detachment, and a current of five milliamperes applied for a period of one minute. The eye was thoroughly cocainized, so that the puncture was made without pain, but the patients complained when the current was turned on. The after-treatment consisted in the instillation of a 1 per-cent. solution of atropine, the compressive bandage, and rest in bed for one week. No noticeable reaction followed treatment in either case. The cases were all of extensive detachment; only one could be claimed as presenting conditions fairly favorable for successful treatment—this patient was young, his general condition good, and the detachment recent, a little over two weeks, when the electrolysis was used. Of the other cases, the ages were 65, 40, and 67 years, and the detachment had existed for from one to four months.

If we are warranted in drawing any conclusions from such a meagre report, they would be, first, that the treatment is exceedingly painful, but is not immediately followed by severe reaction; second, that it is valueless as a curative agent in detachment; and third, it may be a factor in exciting inflammatory glaucoma, as occurred in one of my cases.

Treatment of Detachment of the Retina.

By Casey A. Wood, M. D., Chicago.

The earliest efforts of the ophthalmic surgeon were directed to puncturing the sub-retinal sac, and it was found that this usually brought the displaced membrane into its normal position. As, however, detachment was found to occur a second or third time, or, indeed, in many cases, as often as it was replaced, various expedients were resorted to with the hope of rendering the cure permanent. I may here remind you that the replacement of the membrane does not necessarily mean a restoration of the lost visual function, nor do the visual acuity and the extent of the

visual field form a proper measure of the success of a remedy for detached retina as such.

Although much was hoped and expected from Professor Scholer's method of intra-vitreous injections of iodine in this disease, and although a number of cures have certainly resulted from its use, the evidence is on the whole against it as a dangerous and by no means certain remedy. That numerous eyes have been entirely lost from the employment of Scholer's method, I am obliged to confess, and I do not think that even in its modified form, one would be justified in employing it. We may dismiss, also, as needless and dangerous, the injection of irritating fluids—such as potassium permanganate, suggested, I think, by Darier—through a puncture in the sclera. To this category, too, belong De Wecker's device of a gold suture, and Galezowski's catgut suture—all three intended to produce local inflammatory areas and so bind choroid and retina together.

Terson, (2) of Toulouse, from a study of twelve cases in which he employed electrolysis of the post-retinal fluid, believes that this method is superior to those of Scholer, and Abadie.

Galezowski now advances an operation which he calls posterior ophthalmotomy. The instrument used is in the form of an arc of a circle like a curved needle, so that a sufficiently large puncture and counter-puncture can be made and a sufficient number of retino-choroidal cicatricial, points produced to keep the detached membrane in place when it has once returned. He has already followed this plan some seventeen times—in five cases with partial and in two with great success.

Probably the most important and most recent original contribution to the rational treatment of retinal detachment has been made by Deutschmann, of Hamburg, suggested by Erik Nordenson's work. His first proceeding is intended to sever all connections between the shrinking vitreous and the retina, to allow of a free communication between the posterior cham-

1. Professor Schoeler: Zur Operativen Behandlung und Heilung der Netzhautablösung. Berlin, 1896.

2. Terson: Quelques Considerations sur l'Application de l'Ectrolyse a douze cas de Décollement de la Rétina. *Belletins et Mem de la Soc Francaise d' Ophtal., 1895*, p. 151.

3. Galezowski: Du Décollement de la Rétine et de son Traitement par Ophtalmotomie. *Memoires et Bull. de la Société Francaise d' Ophtal.*, 1895, p. 170.

4. Deutschmann: Teber ein Neues Heilverfahren bei Metzhautablsöung. *Deutsche Med. Woch.*, 1895, p. 345, hett xx.

5. Nordenson: Die Netzhautablösung; Untersuchungen ueber deren Pathologische Anatomie und Pathogenefe. Weisbaden, 1887.

ber and the serous collection behind the retina, to empty the latter space so that the freed retina might return to its normal position, and, lastly, to produce adhesion between choroid and retina at certain points. These indications are met by the following operation: The previously atropinized eye is cocainized and a double-edged knife is entered at the chosen spot, the conjunctiva being pushed to one side. The knife pierces all the ocular coats, sclera, choroid, and the detached retina, passing thence obliquely through the vitreous until it touches the opposite side of the bulb; it is then carefully moved to and fro, making a sort of vitreous discission, and is finally withdrawn. Slight hemorrhage occurs at the point of entrance of the knife, and a certain inflammatory action is set up about the wounded points, which process is relied upon to permanently fix the retina to the choroid and so resist any subsequent pulling of the vitreous. The patient is kept in bed from eight to fourteen days, until the ophthalmoscope shows that the case is cured. If the first operation is not a success, the same procedure may be repeated as often as is necessary to produce the desired result.

In another class of cases—in their nature more hopeless—Deutschmann has employed a novel remedial process. This is the injection, with an ordinary hypodermic syringe, into the vitreous cavity, of the freshly prepared aseptic vitreous of a young rabbit diluted with a $\frac{3}{4}$ per-cent. solution of common salt. His results with this method of treatment have been marvellous. This operation may have to be repeated two or even three times, and it must be remembered that an inflammatory reaction follows each injection.

My own experience in this disease has led me to think, with Bull (1) of New York, that we have as yet discovered no better device than that resorted to by the older ophthalmologists, viz.: rest in bed, bandages, atropine, and the internal use of some absorbent.

In conclusion, this review of the treatment of detached retina would be incomplete without a reference to spontaneous cures. Very many cases are met with in the literature; indeed, one may safely say that of all the histories of cures, temporary and permanent, at least 10 per cent. were accomplished without treatment. So numerous and well authenticated are they that I cannot help thinking that a large percentage of the results obtained after iridectomy, after removal of the lens from the use of atropine, bandaging, pilocarpine, etc., even some cases of cure following posterior operations, are really brought about by local and gen-

1. Bull: *New York Medical Journal*, September, 1894.

eral rest—by putting patients in such a position that they cannot by overexertion of any kind make a bad matter worse. The retina, having meantime broken loose from its connection with the shrinking vitreous, returns to its normal position, and the treatment, medical or surgical, gets the credit of it.

Discussion.

Dr. J. A. White, Richmond Va.: This method of referring subjects to a committee for consideration is an admirable one, and the committee this time is to be congratulated upon the character of its work, in laying the subject before us in its every aspect. They have reveiwed the subject to date and told us something new, but still I do not think our knowledge of retinal detachment is much advanced from what it was twelve months ago. My knowledge of the anatomical conditions in detachment is very crude. In considering the etiological factors of detachment we are also to some extent groping in the dark. Apart from myopia, tumors, sub-retinal hemorrhages and effusions, I do not think we have any very sure foundations for explaining the many cases we meet with where there is no apparent cause whatever. As Dr. Reik said, "It is important to know the causes in order to decide upon the method of treatment," but in many cases this cannot be established. When we come to consider the treatment I quite agree with Dr. Wood, that up to the present time, notwithstanding the many suggestions offered us that were each in turn expected to be sure cures, we are still as badly off as we were many years ago. Certainly the old treatment of rest, diaphoretics, pilocarpine, etc., gives us as good results to-day as any of the operative procedures. It is only in the recent cases of detachment that we have had any satisfactory results from any of the methods. Among the things that I have tried are rest, iridectomy, sclerotomy, paracentesis, and sclero-puncture, and I am not wedded to any method of treatment. I do not advise operative measures except in cases where the macula is involved, and not even then if there exists a condition likely to lead to hemorrhage. As we know that spontaneous cures often occur, it is difficult to say in any given treatment that the good results obtained would not have occurred anyway. Electrolysis may be a good thing; certainly much has been claimed for it. The galvano-cautery is too dangerous and risky and should be placed in the same category with injections of iodine. Deutschmann's method has been mentioned, but I think that neither he nor any one else has yet had sufficient experience with it to warrant a good report. One method that has not been mentioned here is

that of Strau. He frees the conjunctiva from the sclera over the site of the detachment, makes three little slits in the sclera, such as you see a man make in his shoe over a tender corn, and then unites the conjunctiva over this with sutures and allows it to heal. He then makes injections in this region of a 1:5000 bichloride solution, and from this has claimed very good results. As he has so recently proposed the method, of course no statement as to permanent results can be given. It is simply an experiment, like all the others, and may perhaps be thrown overboard. My own experience has not been very great. I have not tried the injections of rabbit vitreous. I have watched some cases in private practice from their very start. One was in a physician, associated with a low grade of myopia, corrected by a—2.50 D for distance, with which he has had for fifteen years almost perfect vision. Recently he came to say that he had a little spot in his eye. I paid no attention to it, thinking it simply a muscae volitantes. Some time later he complained of an increase of this spot, but I still could not find any opacity with the ophthalmoscope. A few weeks later the spot became visible, looking like a floating body, and I then told him that his vitreous was undergoing liquefaction, though he never had any alteration of refraction or any changes in the choroid that I could determine. Soon I noticed a secondary detachment, and although we gave treatment by rest, pilocarpine, etc., in sixty days the detachment was total. He from the first refused an operation because he was well acquainted with the subject and knew the slight chances of success. I doubt myself if vision could have been preserved.

Dr. Lyman Ware, Chicago, Ill.: I am glad to have heard Dr. Montgomery's paper. We always enjoy having our opinions confirmed, whether such opinions have been well founded or not. I do not for a moment question the correctness of the report of Dr. Terson's cases, but I was not convinced that electrolysis was the cause of the result. One question that occurs to me is whether using a positive pole is a rational treatment. One of the first things settled in regard to the use of electricity was that the positive pole produced coagulation and the negative pole diffusion. Now the question arises: Would not absorption be best brought about by the use of the negative pole? Of course, from the nature of things it appears that no treatment will give very good results. The very fact that we have such a variety of treatment offered shows that none is satisfactory.

Dr. A. R. Baker, Cleveland, Ohio: I have had but slight experience in these cases, and hope I shall never have more. I wish, however, it were possible to make a more scientific classifi-

cation. In the case of hemorrhage, tumors, or trauma, the detachment is simply an incident, and, as in those cases produced by Bright's disease, if the cause could be removed the case would recover. We have a hospital in our city connected with the poorhouse. I have quite a number of cases there, and have put them in the hospital on their backs. Formerly I made a scleral puncture, but lately I have omitted that. I remember one case where there was almost complete detachment in one eye, existing for a number of years and followed by detachment in the other. I kept him under treatment for six months, and discharged him with fairly good vision. About three years later I found him back in the hospital, blind, and with no prospect of recovery. We still have much to learn in regard to these cases, and treatment in my experience is very unsatisfactory.

Dr. G. E. de Schweinitz, Philadelphia, Pa.: I wish to deprecate the report of cases of retinal detachment submitted to operative interference before sufficient time has elapsed to test the sufficiency of the cure, and I could illustrate what I mean by reporting cases which have been under treatment shortly after having been reported as cured in other hands. I would suggest that Deutschmann's results in human beings with injection of sterilized vitreous should be proven upon animals. In this connection I would refer to my own results with intra-ocular injections. Thus far I have found that aqua chlori is the only substance which can be injected into the vitreous with impunity.

Dr. D. S. Reynolds, Louisville, Ky.: The committee deserves great credit for its admirable work, but I am unprepared to accept the details of the pathologic changes described by Dr. Randolph. It is by no means clear that the drawings furnished are sufficiently accurate to support the accompanying descriptive language. Much confusion necessarily follows the translation of the descriptive language of foreign observers. We all know that the normal retina cannot be shown to contain pigmented layers, yet Dr. Randolph's report contains a reference to that impossible condition. As Dr. Baker has said, "Much confusion results from lack of proper classification of cases of retinal detachment subjected to treatment." In my own experience results have been in some cases very encouraging at first, but, in a few months at most, relapses have occurred. In persons under fifty years of age in good general health, medicinal treatment often yields brilliant results, but in nearly all cases re-detachment comes on in course of time. My attempts at operative treatment have yielded results in no wise more encouraging than by the salicylates, pilocarpine, and iodides, with rest in bed. Much

remains yet to be done before we may claim positive permanent recoveries from any treatment.

Dr. R. L. Randolph, Baltimore, Md.: In reference to Dr. Reynolds' remarks, I beg to say that the drawing is not my own, but was made by an artist from one of my sections. I will be glad to send Dr. Reynolds my sections, and he can confirm my observations. While nothing positive has been added to the therapeutics of this subject, I think we have gone over the whole ground thoroughly, and it is always a help to know the present status of any subject.

MEETING OF THE NETHERLANDS LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, JUNE, 1895.

TRANSLATED BY D. H. ALDERTON.

H. ZWAARDEMALER.

A. On Toynbee's Otoscope.

Zwaardemaker lays stress upon the fact that the otoscope is generally constructed of materials which are bad conductors of sound, so that there is really no transmission of sound by wall-conduction (resonance?). It is the air which conducts the sound. In this connection therefore, the size of the opening is of much importance. To demonstrate this, the speaker described a trial when the tone limit of a C2 tuning fork was made in contact with a wide and a narrow otoscope. The limits were 65 and 53 seconds respectively. It is, therefore, advisable to choose an opening which corresponds to that of the canal. As a rule, a diameter of 6mm. will serve the purpose. This diameter should be even throughout the cylinder, also in the aural tip, where it is generally smaller than in the rubber tube. In holding the otoscope in position, only very gradual curvatures are to be permitted. It is, therefore, desirable that the patient hold the instrument inferiorily and posteriorily inclined. The physician should insert the instrument well into the ear. This is only possible when the wall is of light construction. Then the otoscope will voluntarily assume the position of the canal.

The question whether resonance comes into play with the use of the otoscope was answered in the negative by the speaker. The tube being closed at both ends by a tympanic membrane, in all circumstances loops must form at the ends and a node in the middle. When an otoscope has a plane of 85 ctm., the length of the sound waves of the special instrument tones will be 170ctm., and the number of their vibrations will transmit 195 double vibrations. Such deep tones will rarely be perceived with the use of the otoscope.

The otoscope, in contrast with the stethoscope, does not transmit sound by wall-conduction, and so one does not gain anything by using a binaural otoscope. Aside from the awkwardness of handling, it could only offer the advantage of hearing with two ears, without any increase in bi-lateral bone-conduction.

DISCUSSION:

Herr Brondgeest: The opening in the ivory tip is always smaller than the diameter of the rubber tube.

Herr Zwaardmaker: The diameter of the olive should be 6mm., and the thickness of the wall should be less.

Herr Guye: The tube is generally connected with the ear tip in a very defective way; viz, by a connecting piece, whose lumen is not more than 2-3 mm. This connecting piece should be done away with.

B. With regard to the requisite acuteness of hearing in the use of government telephones.

In accordance with an order of inquiry as to the status of hearing among postal and telegraph clerks, an examination was made to determine the requisite acuteness of hearing with the telephones in general use for intertraffic. It was revealed that with a hearing of 1 mtr. for the whisper, only single words could be distinguished over the long distance telephone; that with 1.5 mtr., whole sentences of the formula were missed. With 2mtr. most of the words could be understood but the connection was lost. Only with 4 mtr. can a formula (the description of the course of a river in Holland) be repeated with much effort. And even a patient who heard 6mtr. encountered difficulty, and only those patients who heard 7mtr. could follow the formula with ease and rapidity.

DISCUSSION:

Herr Guye: It is noteworthy that the left ear is the most important for use in public telephoning, while in opposition the clerks at the central stations use the right ear almost exclusively; in consequence, hearing in that ear becomes restricted.

Herr Moll: Did the examination embrace the injurious effects of telephoning upon the hearing?

Herr Zwardemaker: No, such cases are noticed in literature. In our country we have not yet observed high post officials who were thus affected. It is, however, an established fact, that telephoning in general and the telephone service in particular, makes great inroads upon the nervous system, and materially aids an outbreak of neurasthenia.

C. Some rare forms of deafness.

Zwaardemaker first demonstrated three cases in which the patients had suffered fracture at the base of the cranium. In comparison, were presented cases of labyrinthine deafness from syphilis and parotitis. Others of deafness from sclerosis, quinine poisoning complicated by sclerosis and labyrinthine deafness from ordinance service. The next case of deafness in a case of hereditary retinitis pigmentosa. Here was a remarkable deafness of peculiar form. The lower tone limit of the scale on both sides was E2 (20 double vibrations); the upper tone limit to A6, on the left was A6. Between was perceived a pretty equal lowering of hearing for all tones.

This case gave occasion to the demonstrator to emphasize in passing the analogy between hemeralopia and paracusis Willisiana. In both cases respectively, a decrease of function by the fading away of light and of sound in the surroundings; an increase of function which may be observed with the returning stimulation of light and sound. In both cases deficient nutrition in the periphery of the field of vision and auditory apparatus respectively, which appears in the deposit of pigment in retinitis, and the threatened loss of the upper tones in the scale in paracusis.

In conclusion, the demonstrator called attention to two cases of progressive labyrinthine deafness. One patient had a break in tone just at the pitch which corresponds to the tinnitus complained of. Thus, a complete suspension of function was observed, while the internal source of grievance continued.

Herr Guye: The comparison between paracusis and hemeralopia is most interesting to me, because I am persuaded that the first has its origin in the acoustic and cannot in any way be attributed to the ossicles.

A. A.—G. Guye:

On a peculiar rotary sensation in disease of the labyrinth which has not yet been described.

Guye recently had under observation a case of Meniere's disease, with deafness in the left ear, the patient being a man forty-seven years old. The middle ear was normal. During the attack, the patient saw all surrounding objects go round like the hand on the face of a watch. This continued for a moment, and then suddenly everything seemed to fly away to the right; vertigo and nausea followed, and if he did not hasten to lie down, he would fall over.

As a rule, the rotary movements in Meniere's disease are of two descriptions. The most usual is the turning around a vertical axis, and, in fact, as Guye demonstrated in 1879, towards

the side of the ear affected. This may be traced to an irritation of the ampullae of the horizontal semi-circular canal. The second rotary movement is forwards and backwards. The third, which is the most rare, is the revolving of all objects before the eye, like a wheel, or the hands on the dial-plate of a clock. The planes of the vertical semi-circular canals on both sides intersect the horizontal, not in a sagittal or frontal line, but in an oblique line. The left superior semi-circular canal corresponds to an axis which intersects the right eye and the left mastoid. Running parallel to this canal is the posterior semi-circular canal of the right ear. The axis, which corresponds to the right superior and the left posterior semi-circular canal, transects the left eye, and the right mastoid. Moderate rotary movements in both pairs of these co-ordinate canals may account for the rotary movements of objects more or less to the right or left, which correspond to the hands on the face of a supposed clock in front of the patient. Violent rotary movements which proceed from these canals might account for the sensation of falling forwards or backwards, were it not that we have to do with an axis which lateralizes more to the right or the left, than with a transverse axis.

Herr ten Siethoft: I have had a case of neuraesthenia under observation, in which the ears were quite normal, but the patient experienced these rotary movements with every attack of migraine. Another patient, with moderate middle ear catarrh, suffered from Meniere's affection and experienced rotary movements in quite the same way. This patient also suffered from swelling of the mucous membrane on the posterior end of the inferior turbinated bone. The application of cocaine was followed by immediate relief from giddiness. After excision of the inferior turbinated bone, Meniere's affection did not again appear. I am inclined to attribute the peculiar giddiness in these two cases to nervous neuraesthenic influences rather than to labyrinthine trouble.

Herr Guye: It is true that in many cases of Meniere's disease, complaints are partly of a nervous nature. But we should be cautious not to hastily diagnose such troubles as neuraesthenia. I think it probable that in the second case some temporary disturbance (hyperaemia) in the vertical semi-circular canal was the cause of the giddiness.

Herr Burger: The movements described are very interesting; but the relations of the same to affections in the semi-circular canals, is, for the present, mere hypothesis. There are only two ways in which light may be thrown upon this subject, viz.:

by obductio legalis, and by experiment.

Herr Guye: The question does indeed assume a hypothetic character at present. It is therefore desirable to observe well such cases. My patient was stone deaf in one ear.

Herr Zwaardemaker: I should like to call attention to two aids to experiments in this connection, viz.: the apparatus which Kreidl employs in labyrinthine examination of the deaf mute; a common piano stool upon which one turns the patient around, and a common rocking chair.

AUSTRIAN OTOLOGICAL SOCIETY. PROCEEDINGS OF JANUARY 28, 1896.

PROF. GRUBER, Chairman.

DR. POLLAK, Secretary.

TRANSLATED FROM "MONAK F. OHRENH." FEB. 1896.

BY H. A. ALDERTON.

Coloboma Auriculae, Successful Plastic Operation.

Prof. Gruber reported a case of very successful operation for Coloboma Auriculae.

As was shown by the cast made by Dr. Hennig before the operation, we had to do with a congenital fissure of the left auricle in a young man twenty-two years of age. The fissure ran through the entire auricle from the helix to the front and divided the auricle into two parts; the inferior part holding the antitragus and the lobe, the superior comprising the other half of the auricle. The margins of the fissure were covered with normal cuticle, and the several parts were normally developed. The lobe had grown fast to this side of the face, along its entire front edge. Those portions of the auricle which lay over the fissure stood out from the side of the head at an angle of 75°; while those portions which lay under the fissure formed an angle of 30°, with the parietal bone. Then the deformity was perceived at a first glance, even when the patient presented full face, and the mis-shape was the more noticeable because the right auricle maintained its normal position. It was this deformity which naturally became painfully apparent when the profile was presented, which determined the patient to ask for relief.

It was easy enough so to approach the edges of the fissure that they met, but the upper portion of the auricle remained in

its original position, and when the patient presented full face, the deformity was as noticeable as before. Therefore in operating, we had to do away with the fissure and at the same time assure a normal position to the upper portion of the auricle.

With this result in view, the edges of the fissure were first stimulated by removing small pieces of skin, and then united by a deep suture. After this operation, it was perceived that the skin of the posterior surface of the auricle shrank more than that of the anterior, and this determined Gruber not to put in all the stitches at the same time because it would leave an unsightly scar, but to join first the skin edges of the anterior surface and then those of the posterior surface of the auricle by separate sutures; and in order to prevent a future solution of continuity in the helix, the first stitches were put in them, and particular pains taken to nicely adapt the lips of the wound.

Then in order to approach the upper portion of the auricle more closely to the side of the head, the demonstrator did the plastic operation, which he has advocated for years in similar cases, and often successfully performed. Two semi-circular incisions, about 5 ctm. long, with the convex surfaces turned on each other so that they met at an acute angle above and below, were made through the skin behind the auricle in such manner that the one incision fell on the auricle about 1 ctm. from its insertion, and the other on the mastoid at a like distance. The portion of cuticle bordering these incisions was loosened from its base, and removed. Then the skin of the posterior as well as the anterior incision to the area of 5 m. m. was loosened and removed in like manner. The hemorrhage, which was quite severe, was quieted by tying the arteries affected and the lips of the wound were united by 5 stitches. By putting on an antiseptic bandage, by means of which the suture was pressed into the angle of insertion with iodoform gauze, it was possible to give the auricle its natural position. As there was not the slightest reactionary indication in the days following the operation, the bandage was not touched for 8 days. When it was removed, the edges of the incisions were found to have united perfectly, and the position of the auricle was such that the angle appeared still a trifle different from that of the other side. The stitches were now taken out and for the sake of precaution, a suitable bandage was put on for a few days longer. Now no difference could be perceived in the position of the auricles, and the union of the fissure was most successful.

The patient presented himself again in Gruber's clinic on January 29th, of last year, and expressed himself as being well satisfied with the result. The same conditions obtain precisely as described above.

PROF. URBANTSCHITSCH reported the case of a fourteen year old girl who had suffered for six months with a suppurative inflammation of the left tympanic cavity. Since the middle of December, she had been subject to headache and attacks of vomiting, and on December 24th, had remained unconscious for several hours. Urbantschitsch saw the child for the first time on December 25th, and undertook the radical operation the same day. A large mastoid antrum was observed; which as well as the attic was filled with detritus and cholesteatomatous masses. The incus was wanting; the malleus was removed and was found normal; the dura mater lay exposed on a small part of the tegmen tympani. During the operation there was a severe arterial hemorrhage from the antrum-attic roof, which probably proceeded from a branch of the middle meningeal artery. The hemorrhage was checked by a tampon of iodoform gauze which was held in position for ten minutes (in another case Urbantschitsch was obliged to suspend the operation, and finish it five days later). After the operation, the girl felt perfectly well. Temperature on the day of operation was 38.7° C.; the next day 37.8°; and from then on 37-36.5°. The wound healed well. The former cerebral disturbances did not again show themselves. However, a week after the operation there was slight frontal headache and drowsiness, but the child's general condition was not in the least disturbed, and she gave rational answers.

On the 9th of January, 1896, after a good day, suddenly, without premonitory symptoms, death resulted. The autopsy made by Prof. Kolisko showed in the inferior lobus temporalis of the diseased left side, an abscess as large as a hen's egg, surrounded by a stout capsule (of 3-4 month's growth) and between this and the tegmen tympani, a normal cerebrum. In the neighborhood of the abscess, oedema was found which was the only established cause of death. Urbantschitsch demonstrated the preparations in question.

URBANTSCHITSCH reported a second case which was under observation at the same time as the first. That of a woman, thirty-four years of age, who for three years had been troubled with suppurations of the left ear, and who, particularly in December, 1895, was subject to pain in the occiput, stiff neck, giddiness, nausea and confusion of the head. When the patient came to the polyclinic for operation on January 2nd, 1896, symptoms of

meningitis with temperature of 40° C, were marked. Nevertheless, Urbantschitsch undertook the radical operation. The antrum mastoideum and the atticus showed a large cavity filled with cholesteatoma, and the dura mater lay exposed over a portion of the vault of the antrum mastoideum. Thiersch-Siebenmann's transplantation was undertaken. On the day of operation (done at 8 o'clock in the morning), and during the next morning, Jan. 6th, the patient was well and had no fever. But at noon on January 6th, a high fever set in (39.5°) which continued (39-40.6°) to the end. An examination of the wound showed it to be progressing normally, and there was no trace of retention of pus. On January 6th, when the fever rose again, commenced also an ever increasing movement of the eyes (deviation conjuguie) and a turning of the head to the left, so that when the patient tried to turn the head to the right, it was very painful, and a feeble movement of the eyes to the right was made with difficulty. The sensibility of the patient was apparently perfectly preserved, but the same day she was taken with aphasia, which was marked by expression of one term only (for example, "remain") and now and again of one syllable (for example, "main, main, main"). On January 7th, there was a paralysis of the right extremities, with contracture of the same, increasing reflex action, anaesthesia and analgesia. Opposed to this, the left extremities were hyperaesthetic. Although the symptoms pointed to a possible abscess in the left lobus temporalis, Urbantschitsch did not undertake another operation in view of the patient's weak condition and the pronounced meningeal disturbances. On January 9th, death took place. The autopsy (Prof. Kolisko) revealed pachymeningitis chronica interna and pachymeningitis et leptomeningitis purulenta. The inner surface of the dura mater above the left hemisphere was covered with a stout fibrino-purulent exudative membrane. The meninges upon the basilary process, in the region of the chiasma, behind and over the pons and medulla, and also several sulci along the convex surface of the left hemisphere, were all bathed in an exudation of serous fluid which had filtered through. There was no brain abscess.

Urbantschitsch called particular attention to the fact that in the first case a large abscess existed in the left lobus temporalis, without any appearance whatever of purulent collections, while in the second there were large collections, but no abscess.

URBANTSCHITSCH demonstrated further a projectile which he had removed from the tympanic cavity of a man by chiseling away a portion of the anterior wall of the canal. The

ball in question was shot from a revolver and whizzed through the canal without injuring it, forced its way into the cavity and flattened itself out on the promontorium. The patient experienced total loss of hearing in that ear. The removal of the projectile revealed a crushed promontorium without an entrance into the labyrinth.

On the second day after the operation, facial paralysis set in, which passed within a week into total paralysis.

Urbantschitsch explained this as the result of pressure on the exposed nervus facialis, and tried first the induction current. But no improvement taking place within the week, Urbantschitsch tentatively undertook mechanical massage of the facialis, by a series of quick strokes in the lamed muscles, a method of treatment which Urbantschitsch had adopted with success in other cases of facial paralysis. And indeed after each treatment, the muscles moved more or less freely. This method in connection with the current of induction was continued, and at the end of six weeks a complete recovery was made.

In conclusion, URBANTSCHITSCH showed a sequestrum which he had removed from the right ear of a woman, and which consisted of the entire cochlea. It was remarked that after the removal of the cochlea, the woman heard all the tuning fork tests better in the right ear than in the left, and localized tests, made with the tuning fork placed on the middle of the head, invariably as being on the right. It was three months after the operation that the woman began to be uncertain as to subjective location, and from the fourth month on she heard the tuning fork better on the normal left side, and a year later the same condition obtained. Urbantschitsch thought that this case might be interpreted with regard to the hypothesis advanced by Ewald, viz.: that the sensation of hearing might proceed from the trunk of the acoustic, after the decay of the peripheral terminal organ, and that this condition might result several months later in consequence of an atrophy of the acoustic. Nevertheless, Urbantschitsch said that he did not accept this theory but thought that the localizing of the sound in the right ear minus the cochlea in this case, only went to prove that positive tests cannot be made with the tuning fork. Ewald's hypothesis could only be seriously considered in a case where the cochlea was wanting on both sides. Urbantschitsch had only observed this one case spoken of by Dr. Max, in which both the cochlea had been removed, and in which a total bilateral deafness existed.

Prof. GRUBER said he could not agree with the demonstrator

that total deafness must follow the removal of the cochlea. He was of the opinion that a partial loss of the labyrinth need not result in total deafness. Gruber told of three cases observed in his clinic where it did not result. Ewald's theory should not be abruptly dismissed without consideration. On the contrary, he believed that the time would come when one would have other views as to the functions of the several parts of the labyrinth than those accepted at the present day.

Dr. MAX expressed his adherence to the generally accepted views.

Dr. BING thought that the nervous system of the semi-circular canal might in responding to certain vibrations perform the functions of an organ of co-ordination, and again those of a perceptive organ of sound in responding to other vibrations.

Dr. POLLAK demonstrated a sequestrated cochlea, which he had removed by syringing from the right ear of a man suffering from an otitis media purulenta. After the removal, the man lay unconscious and paralyzed on one side for several months in the medical section of the general hospital. After leaving the hospital he was subject for a long time to giddiness, and unsteadiness of gait. Examination revealed total deafness of the right ear for all conducted tones, air as well as osteo-tympanic conduction. Weber lateralized to the left. Disturbances of co-ordination were not present, but the patient could not stand on one leg, with closed eyes. The electrical examination of the ear was very interesting. The electrodes were so arranged that the positive rested on the left forearm, and the negative was placed on the right tragus. With the cathode closed, and a current of 5 milliamperes, the patient said he perceived a humming sound in the right ear, and he could not nearer localize it. The demonstrator therefore concludes that the trunk of the acoustic may transmit the sensation of hearing when stimulated by an electrical current.

Pollak had had some of the medicated gelatine bougies which Gruber introduced into practice in 1878, put up by the chemist Grohs in Vienna. The bougies were prepared according to Gruber's formula, only instead of the customary addition of zinc, sulphur, or opium, 10 per cent carbolic acid was used. He obtained good exhibitions from their use in otitis ext. circumscripta. Soon after the introduction of the bougie into the outer canal, the pain ceased, and in 70 per cent of the cases, the process was arrested. These favorable results encouraged Pollak to try the bougies in the first stages of otitis media acuta. The action of the carbolated gelatine bougies in quieting pain and in fre-

quently arresting the process, was prompter than that obtained by dropping in the 10-20 per cent phenol-glycerine recommended by Bendeladt-Hewetson.

The application is simple and preferable to the dropping in of carbolated glycerine. The objection raised that the canal is obstructed by the dissolving of the gelatine is emphatically done away with by Pollak. He agrees with Gruber who says that the bougies run out in a clear watery fluid, which is readily absorbed by a tampon of cotton placed at the entrance to the canal.

MEETING OF THE HUNGARIAN OTOLOGICAL SOCIETY.

Herr Slenes

CARIES OF THE MASTOID FOLLOWING INFLUENZA, (OR AS AN AFTER EFFECT OF INFLUENZA).

Clinical Demonstration:

The patient was a fifteen year old scholar at the Gymnasium, who was taken ill on September 5th, with headache, a feeling of general lassitude, and a temperature of 39-39.5° C. The next day excruciating pain was felt in the depth of the left ear, and the day following in the right ear also, and because of this symptom, I was called to the patient on September 8th. Examination revealed otitis media acuta of both ears, and a well marked hyperaemia of both tympanic cavities, which did not yield to the prescribed 15 per cent carbolated glycerine, and the next day there was a profuse discharge from the left ear, and a day later from the right ear also. Before the appearance of the otorrhoea, the patient was delirious at one time, but only a little while. With the exception of Trousseau's lines, however, there were no further meningeal symptoms. From September 10th, both ears were syringed every two hours with Lysol solution; because of the extraordinarily profuse otorrhoea, an ice bag was kept on the head, and applications of ice were made to the ears. Up to September 12th, the temperature gradually fell, and after that date the patient was without fever. Notwithstanding the absence of fever, all the other symptoms, especially the bronchial of influenza, were marked, and when I again saw the patient on September 18th, he complained (aside from the mentioned symptoms) particularly of loss of hearing, and the profuse otorrhoea in both ears. In the posterior inferior quadrant of both tympanic membranes, a large perforation was perceived, but the mastoids were intact.

In a month to the day (18th October), the patient again presented himself. There had been no discharge for three weeks and hearing was normal. The left mastoid was red and swollen,

In the depth of the outer canal there was a small deposit of pus. Upon its removal, a defect was perceived in the posterior inferior quadrant of the membrane, but on the right side no trace of a former process could be seen. Upon the application of ice to the left ear, the swelling entirely disappeared. However, I convinced myself of this on October 25th, when there was still some discharge from that ear. The patient discontinued the application of ice. On November 8th, he came again, as the left mastoid was again much swollen and the renewed application of ice had no effect. The mastoid operation was decided upon, and November 11th, the patient was admitted to the Hebrew Hospital.

At the time of reception, the left auricle inclined a little forwards, the epidermis of the mastoid region was inflamed, and in the middle on a spot as large as a "heller" [a small copper coin], was perceived a fluctuation; by percussion, as well as by Okuneff's recommended method of auscultation, that the mastoid was diseased throughout. Hearing for right ear found normal; for the left, watch zero, lower tones of tuning fork only perceptible by bone conduction, upper tones by air conduction, Weber +, Rinne left—.

After incising the soft portions, the periosteum which was slightly thickened was loosened with rather more than usual difficulty, by the elevator, and it was only after excision of the entire cortex that the extended caries was exposed. In the antrum was found a little inspissated pus, together with quite an amount of fungus granulation. After a thorough cleaning out of the deposits, the entire wound cavity was plugged with iodoform gauze, and after anaesthesia of two hours duration, the patient had rather a restless night. (The operation lasted from 6-8 in the evening.) But the next morning he felt well and got out of bed. Five days later (December 16th) the first dressing was changed. There was no secretion and the hearing had improved so that the watch was heard 5 ctm.; also Rinne was + for upper tuning fork tests and — for lower tones. On November 19th, the dressing was again changed, the patient was discharged from the hospital, and came under ambulatory treatment.

At the time of demonstration ten days after operation, the patient felt very well; his color improved from day to day, and one may confidently look forward to perfect recovery with healing of the wound, in a few weeks. The colossal destruction of the mastoid shows only too well what ravages may be made by influenza.

It is interesting to note in this case, that the influenza estab-

lished itself, so to speak, first in the auditory canal, and when the tympanic cavities on both sides were attacked in like manner, under the same treatment for both ears, the right recovered its normal condition, while the trouble in the left spread to the mastoid. Notwithstanding this new trouble which arose later, the patient had fever only during the first days of his illness; afterwards he was free from fever. Sensitiveness on pressure as well as spontaneous pains occurred in the left mastoid before the operation. Since the operation the wound itself is not sensitive on pressure.

DISCUSSION:

Herr Krepuska: In my experience, otitis media suppurativa acuta, particularly when it is the outcome of influenza, only attacks the mastoid in very rare cases, if no mistake in the treatment is made. It is very probable, in the case before us, that the suspension of treatment for a month, permitted the retention of pus, and so gave rise to disease of the mastoid, which could only be cured by operation.

Herr Boke: In the case before us the beginning of the trouble was due to the influenza, which does cause otitis media, and may spread further; how far cannot be determined from the foregoing. It confines itself generally to the tympanic cavity and seldom attacks the antrum. I am of the opinion that with proper treatment, we are in a position to cure influenzal otitis without resorting to operation. And when the otitis media runs into the antrum, either the patient has been imprudent or an error of judgment has been made in the treatment.

As regards this case and operation, it is certainly most successful.

PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL. RHINOLOGICAL AND OTOLOGICAL SOCIETY.*

SECOND ANNUAL MEETING, HELD AT NEW YORK, APRIL 17 AND 18, 1896. PRESIDENT, EDWARD BRADFORD DENCH.

The Diagnosis Value of Ophthalmoscopic Examination in Cerebral Diseases Depending upon Affections of the Ear.

DR. Thomas R. Pooley, in a paper on this subject, said that probably the first to call attention to the value of the ophthalmoscope in this connection was Dr. Kipp, of Newark. One of the cases reported by him was of special interest It was one of acute purulent inflammation of the middle ear, with double optic neuritis, but without tenderness, swelling or spontaneous pain in the mastoid process. Opening of the mastoid cells was followed by rapid subsidence of the optic neuritis. The patient complained of pain and throbbing in the ear which had lasted for six weeks. The membrana tympani was of a deep red color and much swollen. The ophthalmoscope showed the eyes to be entirely normal. A free opening was made in the drum membrane, and the cavity syringed out daily. About two months later, the ophthalmoscope revealed a well marked optic neuritis in both eyes, although vision was not impaired in either eye. The temperature was 99, pulse 72, and there was no chill. The mastoid was opened, and thoroughly cleansed out subsequently, and this was followed by improvement. After a month or two the discharges ceased entirely. The optic neuritis remained stationary for about one week

*For this complete report the ANNALS is indebted to Robert C. Myles, M. D., of New York, the Secretary of the Society.

after the operation, and at the end of a few weeks had almost entirely disappeared. She had been kept under observation, and had remained in good health,—the vision and optic disks being normal.

His own case was one of purulent otitis media occurring in a young boy. He had had otorrhoea for many years, and some years previously Wilde's operation had been made at Buda Pesth. When first seen by the speaker, the temperature had been 102.5, and the pulse 128. Wilde's incision was made, and quickly followed by a subsidence of the temperature, but another rise of temperature occurred the next day. Schwarze's operation was then performed, and about a drachm of foul, caseous matter removed from the antrum. During the operation, a considerable part of the surface of the dura was exposed in the wound. For twenty days the temperature oscillated between 101.5, and 105.5, and the patient showed occasional maniacal excitement. At the end of this time, the patient became blind in the right eye, and the ophthalmoscope showed impaired vision on the right side and violent hyperaemia on the left. Hemiplegia then developed, and soon afterward the patient died. At the autopsy, the vessels of the dura were found to be intensely engorged, and there was a layer of thick, foul-smelling pus which bathed the left hemisphere. The optic nerve was swollen. The cerebellum was normal. A large encapsulated abscess was found in the anterior portion of the occipital lobe of the left side, and around this the brain was softened. It was found that the dura had not been perforated at the mastoid operation.

The following conclusions were drawn: (1) That the ophthalmoscope was valuable in arriving at the diagnosis of cerebral disease, in some instances by confirming the evidence given by other symptoms, in others by giving the principal, if not the only reliable evidence of brain disease. (2) The intra-ocular end of the nerve is never inflamed where the disease remains limited to the middle ear and mastoid, but is certain evidence of brain disease. If, therefore, optic neuritis is found, the diagnosis of extension to the brain is certain, whether or not there are other evidences of this condition. (3) The form of optic neuritis is always that seen in affections of the brain, viz.: choked disk—and this may vary from simple evidence of stasis to the pronounced choked disk. In his

opinion, the various forms of neuritis described were only different degrees of this particular form of optic neuritis. The presence of optic neuritis was unfortunately no aid in the solution of the problem of determining the localization and nature of the disease. (4) It occurs more frequently in chronic purulent otitis media than in acute cases. In the latter it is very rare. The list of brain lesions in which optic neuritis is observed embraces nearly all the usual lesions—abscess of the brain, meningitis and sinus thrombosis. (6) The occurrence of optic neuritis in otitis media chronica with implication of the mastoid, and a history of long standing otorrhoea is, by inference, due to a cerebral abscess. (7) The extent to which the presence of slight oedema of the optic disk should influence us in determining the operation on the mastoid was an open question, but he thought we might accept Andrew's conclusion, that as the operation when properly performed, is not dangerous, we may accept oedema of the optic disk as an indication for opening the mastoid, with the object at least of establishing free drainage from the middle ear. (8) The existence of optic neuritis as an indication for more serious operation, such as an exploration of the brain for intra-cranial disease, could only be considered in connection with other symptoms, but so far as it went, it made the presence of intracranial disease more certain.

Dr. J. Herbert Claiborne, said that the conclusion presented in the paper covered in a succinct manner nearly all that was known on the subject. Many did not perform the mastoid operation in the manner that Schwarze did. Of this he could speak positively because he had studied at Schwarze's clinic. In none of the cases seen there had there been any symptoms pointing to ocular trouble. In Berlin he had seen for several weeks an interesting case—one of chronic purulent ototis media. The patient suddenly developed a high temperature and delirium, and had died before morning, the autopsy showed that the pus had passed through the tegmen tympani nto the meninges of the brain, and had excited purulent meningitis. It seemed to him that the optic neuritis could hardly be a reliable guide as to the best time to allow the wound to close; the ordinary guide in practice was whether or not the wound was healing properly from the bottom. He doubted whether optic neuritis would prove to be a trustworthy guide o the necessity of operating.

Dr. Pooley, said that he did not wish the conclusions to be accepted as entirely his own; they had been intended to represent rather what had been gleaned from the literature on the subject, He felt sure, however, that optic neuritis would be found much more frequently if the physician took the trouble to look for it. The percentage of cases in which the eye is effected in purulent middle ear disease had not yet been determined.

Report and Exhibition of a Case of Unusual Speech Defect.—Dr. G. Hudson Makuen, of Philadelphia, presented a case of this kind in the person of a young law student. When six months old this young man had lost the sight of one eye; when seven years old he had had a severe attack of diphtheria, and another at the age of twelve years, and he had had scarlatina at the age of ten. The purulent otitis media had existed since the scarlatina. In 1893 there had been an acute suppuration of the attic and aggravation of the old trouble. Adenoid vegetations had been removed on two occasions with considerable improvement of speech after each operation. There was a marked retraction of the lower jaw which destroyed the character of the labial sounds, and this had been overcome by practice in protruding the lower jaw when speaking. The soft palate was greatly relaxed and impeded in its action by the adenoid growths. In trying to say "s," instead of the palate rising to the roof of the mouth, it remained down on the tongue, and the sound was made through the nose. After the thorough removal of a large mass of adenoids for the second time, the patient was carefully drilled in articulation until scarcely a trace of the defect remained.

Dr. H. Holbrook Curtis, of New York, exhibited the instrument, known as the **Laryngo-Stroboscope**, devised by Professor Oertel, of Munich, for viewing the vibrations of the vocal cords. The instrument is constructed on the principal of the well known siren, and is set in motion by an electromotor. If, for example, the siren and the patient are made to sing the same note—say, C— there will be 512 vibrations of the vocal cord per second, and the same number of interruptions of the visual field by the siren; under these conditions the observer will see the vocal cords apparently at rest. By looking slowly from one side of the cord to the other, and properly adjusting

the speed of the instrument, the speaker said, the usually accepted theories as to the manner of vibrations of the vocal cords had been absolutely disproved. With this instrument, the "nodules of attrition" could be seen, and the patient could be taught by a new method to sing in such a way as to remove the vocal difficulty arising from these nodules often inside of a week, even in cases of very long standing. The patient should be given a suitable note to sing, and should practice singing this note according to a certain method at short intervals every day. In this way a very speedy cure of the nodules themselves is brought about.

Dr. Curtis, also exhibited an Auroscope, invented by Dr. Müller, of Carlsbad, in which an electric lamp was included in the speculum, which enabled the observer to study the movements of the ossicles under intense illumination, a hand bulb of rubber being attached as in the auroscope of Ziegel.

Otitis Media Suppurativa with an Unusual Perforation of the Mastoid.—Dr. E. E. Hunt, of Portland, Me., reported a case of this kind occurring in a man forty-five years of age, who had begun to have earache on June 22nd, 1895. When seen by the speaker on July 30th there was a perforation on the anterior inferior portion of the membrana tympani through which muco-purulent matter was discharged. He complained at times of pain and tenderness. The ear was treated with cleansing astringent solutions. There was no tenderness or swelling of the mastoid, but there seemed to be a slight prominence in this region. There had been a very slight rise of temperature. After twenty-one days of this treatment he had decided to chisel away the mastoid, and on doing so he found the outer side of the bone sound, but the inner portion exceedingly necrosed, and a pus track leading into the digastric fossa, and down into the inter-muscular spaces in the neck. The speaker deprecated the common practice of dismissing a patient with the simple direction that the ear should be frequently syringed out; it was much safer and better if the case could not be kept under constant observation to direct that the ear be kept clean with cotton and not syringed at all.

The President said that these cases opening into the digastric fossa were among the most interesting with which we had to deal. He had recently seen a case very similar to the one reported. Although the temperature had been taken at inter-

vals of two hours, no elevation of temperature was recorded while the patient was under observation. At the first incision, pus was evacuated, and it was found that the interior of the mastoid was entirely broken down. The only symptoms of mastoid inflammation in this case were local tenderness and a sinking of the upper posterior walls of the canal. His own experience had been that patients were apt to infect the auditory canal by using cotton to cleanse the parts. While it is usually unwise for a patient to syringe out his own ear, one of the family could be easily taught to do it properly, and this method of cleansing had always been the most successful in his experience.

A Contribution to the Study of Laryngeal Vertigo.—Dr. A. C. Getchell, of Worcester, Mass., in a paper with this title stated that he had succeeded in collecting forty-one cases. Five of these were over sixty years of age, nine were between fifty and sixty years, thirteen were between forty and fifty years, and the others were still younger. One was epileptic, and one had an epileptic brother. Loss of consciousness was expressly stated to have occurred in thirty-one cases, and falls in twenty-six. Slight mental confusion was noted in five; dizziness was mentioned in eight cases; true vertigo was mentioned but once. In thirty-three of the cases it was preceded by cough. Tickling or burning sensations about the larynx were mentioned in thirteen cases; congestion of the face was noted in ten; two were reported as pale; bronchitis occurred in eight cases. Most of the cases had several attacks, although sometimes at quite long intervals. The treatment had consisted in the internal administration of the bromides, and local measures for the abnormal condition about the pharynx. The speaker said that Charcot had first described the disorder and had given it its name, but this certainly did not give a correct notion of the disorder. The average age of the patients was against the theory of its epileptic origin. If the theory of forced expiration were correct, it would seem that obstruction of the circulation should be noticed prior to the attack. The circulatory condition is probably nothing more than an exciting cause in a limited number of cases. Five of the series had nervous temperament. A history of epileptic seizures was not infrequent. It could not be denied that the fundamental patho

logical factor is an unstable condition of the nervous system. Brown-Sequard's researches showed that the larynx has an intimate nervous connection with the nervous system. The author's conclusions were: (1) That laryngeal vertigo occurred in persons in whom there is an unstable nervous equilibrium; (2) That there was usually some condition of the upper air passages liable to cause glottic spasm; and (3) That severe paroxysmal coughing may cause syncope, but only when there is an existing disorder of the central nervous system.

Dr. Sargent F. Snow of Syracuse, said that he had seen a case of laryngeal vertigo or epilepsy in a laboring man about forty years of age who was sent to him in 1893. The friend that accompanied him said that for the previous two or three weeks there had been extreme hoarseness and dyspnoea; along with this there were frequent attacks of laryngeal spasm, and a complete loss of consciousness for a period of perhaps thirty seconds. The patient himself was too hoarse and excited to give his own history. During the first examination he lost consciousness five or six simes, as a result of the contact of the mirror with the back of the throat. The pharynx and larynx were markedly congested, cords reddened and aryten oids swollen. His family physician had been treating him with bromides, but without permanent benefit. This by request was stopped and the only treatment he received was in the way of reducing the pharyngeal and laryngeal inflammation. Under this plan of treatment all his bad symptoms disappeared and did not return. From his history the symptoms of laryngeal congestion and spasm, the extreme loss of voice and nice result from treatment, Dr. Snow came to the conclusion that it was a typical case of laryngeal epilepsy, due to an acute inflammation.

Dr. Wendell C. Phillips, of New York, said that the only case of this kind that had come under his notice (See Medical News, March 19, 1892) had been a patient with a well marked bronchitis and bronchorrhoea. All the laryngeal attacks had begun with a severe spell of coughing, and then he would fall down and completely lose consciousness for a moment. He had treated the bronchitis with eucalyptol internally; he had also given sodium bromide. There had been no vertigo dur-

ing attacks, but during a paroxysm there had been sudden and complete loss of consciousness for a few seconds. Patient had described the sensation as pleasurable, and with no unpleasant after-effect. Recovery was complete after a few days.

Dr. R. C. Myles, of New York, said that he had seen an interesting case of this kind a few years ago in a man about fifty years of age. This man was subject to attacks of bronchitis and coughing, and at such times would occasionally become unconscious for a moment, and then fall. He was a high liver. His diet was somewhat restricted, and the treatment directed to the larynx, and under this a cure was affected. It should be noted that in all cases of death from impaction of a foreign body in the larynx, the individual falls unconscious with great suddeness.

Deviation of the Nasal Septum; Operation.—Dr. Wendell C. Phillips, of New York, presented a boy who, while playing "shinny" was struck with a stick over the nose. This caused a severe nasal hemorrhage, which subsided without special treatment. Seven months later he had been first seen by the speaker. Examination showed almost complete occlusion of both nostrils, as if the blow had caused the septum to be driven back upon itself, and split and forced in both directions. Four weeks ago, he broke up the septum completely with the Adams' forceps under ether, and introduced the perforated cork splints devised by Dr. Berens. It was necessary to use two on account of the bilateral obstruction. There was still a little thickening of the septum, but scarcely enough to interfere with breathing, and the case might be considered satisfactory.

Dr. C. W. Richardson, of Washington, D. C., said that he had operated upon a number of cases of V-shaped deflexions of the septum, but he had found in ninety per cent. of the cases that the septum would drop back into the old position. Since he had used the perforated splints of Dr. Berens', the result had been very good. The reaction from the introduction of these splints usually subsided in three or four days.

Dr. Dwight L. Hubbard, of New York, said that the great point was not to be in a hurry to remove these corks. He had frequently left them in ten days without any harm. Another point was not to leave out the corks permanently too soon.

He had found that relapse had sometimes followed removing them after four weeks, but never if they had been left in for six weeks.

Dr. Holbrook Curtis, said that he considered this splint the most scientific and useful of the splints devised for this purpose. After doing one of these septum operations lately he had been surprised to find that the patient was a "bleeder." The hemorrhage was stopped by a very light plugging with styptic cotton. He believed that light plugging and pressure with a flat copper wire at the right spot constituted the best method of checking such hemorrhage, if the splint itself did not accomplish this result.

Dr. Ewing W. Day, of Pittsburg, said that once while operating under ether he had met with a tremendous arterial hemorrhage after the first incision of the septum, and the patient had nearly lost his life from it. He preferred now to operate under local anesthesia.

Dr. Phillips, in closing the discussion, said that Dr. Asch recommended cutting the septum at the point of greatest deflection by means of a specially devised pair of knife-scissors, making an incision like this +, then breaking up with the finger the four resultant segments, and following with complete breaking up with Adam's forceps. The trouble in Dr. Day's case was probably that he cut too close to the floor of the nostril. In ordinary cases he saw no necessity for using two splints, and had seen ulceration and perforation of the septum result from undue pressure brought about by the prolonged use of *two* splints.

Dr. Myles, presented a case for diagnosis, which exhibited some of the features of actinomycosis bovis. It had been under his observation only a few days. He said that he had seen several cases of true actinomycosis bovis, and most of them had been examined microscopically, so that there could be no doubt about the correctness of the diagnosis. They had been cured by extirpation of the growths. The growths appear hard, tough and leathery like the lichen on wood.

Report of a Case of Hemorrhage From the External Auditory Canal.—Dr. C. W. Richardson of Washington, D. C., reported such a case. The patient was a woman thirty-six years of age, who had at first hemorrhages lasting for a day or

two, and recurring at intervals for a week or more. This continued for a period of six months. In February 1895, the bleeding became profuse and persistent. It had no reference to the menstrual function. Examination showed no solution of continuity throughout the whole canal, or of the membranæ tympani. The eustachian tube was patulous. Pain was experienced throughout the whole history of the case, particularly in the region over the mastoid and about the auricle. After several months of observation he had become convinced that the patient was neither hysterical nor a malinger. The exact source of the hemorrhage could not, however, be determined; although in all probability issuing from the ducts of the ceruminous glands.

Dr. Pooley, **Referred to a Case of Hemorrhage From the Auditory Meatus,** which at first was puzzling, but it was finally found that the blood issued freely from a perforation in the drumhead. Further examination showed petechial hemorrhage in different parts of the body and the diagnosis of scurvy was made. The case terminated fatally, and the autopsy showed the usual conditions found in scurvy, including petechial hemorrhage into the brain.

The President, said that the tenderness along the trigeminal distribution would seem to indicate that the case reported was of the nature of herpes—in other words, that the hemorrhage occurred through some interference with the nutrition of the walls of the blood vessels. A somewhat similar condition was found among gouty individuals.

Dr. Richardson, in closing the discussion, said that the blood had been examined, but with negative results. There was no indication of scurvy in his case, or of the hemorrhagic diathesis, as the patient had been operated upon previously for pelvic growth without the occurrence of unusual hemorrhage.

Hysterical Affections of the Mastoid. Dr. J. E. Sheppard, of Brooklyn, read a paper with this title. The first case reported by him was that of a girl, eighteen years of age, in rather poor health, who came to him with the history of deafness for three years, and of pain and tenderness around the right ear for the past three weeks. Bone conduction was better than aerial conduction. If the patient's attention was

diverted, firm pressure could be made over the part without causing pain. The patient was given sodium bromide, and in a few days was well. The second case was that of a young woman twenty-one years of age, who had fallen down an elevator shaft. Recently she had felt dizzy, and had exhibited a tendency to fall backward to the right side. She complained of pain around the ear. The mastoid region appeared to be tender, but not at all oedematous or swollen. A proposition to operate did not lessen her symptoms at all, and for several days he had been in doubt as to the correct diagnosis. Two seances of partial hypnotism produced a cure. The third case was a woman twenty-three years of age, who stated that for the past few months, following a cold, she had suffered from pain in and around the ear, without any discharge. Examination showed no evident cause, and the diagnosis was made of hysteria, and her attending physician was advised to treat the case by "suggestion." He had been unable to learn the out come of this case.

Dr. Richardson, said that not long ago he had operated upon a case of this kind. The patient was a young woman, about eighteen years of age, who had been treated six years ago for suppuration of the right ear. When seen again the ear was once more suppurating, and there was extreme tenderness over the mastoid region. She became hysterical as the result of grief over the death of her mother. There was no oedema or redness over the mastoid, but it was well known that there were cases of serous mastoiditis without the usual signs. After waiting about two weeks, he had opened the mastoid cells, only finding them perfectly normal. The patient was, however, completely cured. The differential diagnosis when suppuration exists in the middle ear of the affected side becomes exceedingly difficult.

Dr. Myles, referred to the case of a young lady, in most comfortable circumstances, who had suddenly developed extreme tenderness in the mastoid region. The girl was hysterical, and he had some reason to suspect that she purposely irritated the ear. The girl was greatly pleased with the proposal to open the mastoid, but after consultation this was postponed, and the patient recovered without further treatment.

Dr. Phillips, recalled a case of recurrent furunculosis

of the canal, and finally of severe pain and tenderness in the mastoid, lasting three or four weeks. She complained of the pain so severely that she was admitted to the hospital, and preparations made for opening the mastoid. Ice coils were used and leeches also, but the tenderness still existed, and she said she could not sleep. There was no swelling at any time, and finally the apparent tenderness became so general over the affected side that no operation was performed, and at our neurologist's, Dr. Terriberry's, suggestion, she was given Warburg's tincture in full doses; she was relieved and discharged. A few days later she returned in great pain, and an examination of the canal showed about five-eighths of an inch of the point end of a pin, and several pieces of finger nails, near the drum, when confronted with this she was greatly surprised, but denied all knowledge of it; but it was evident that she had forgotten this time to remove the cause of her self inflicted torture. It was also learned that she had been forced to earn her living, and had no doubt taken this method to avoid work.

Dr. J. E. H. Nichols, said that in one case which he had seen, the mastoid cells were healthy, but the patient had been cured at once by opening them. In another case in which there was excoriation of the anterior wall of the canal, and in which he suspected that the hemorrhage complained of had been produced by picking this spot with a pin, hypnotic suggestion was only temporarily beneficial, but a proposal to operate was sufficient to effect a cure. It was not at all improbable that there might be some elevation of temperature in these cases, thus still further obscuring the diagnosis, but ordinarily this elevation would be slight.

The President, remarked that in this discussion nothing had been said about the result obtained by comparing the two sides. In hysterical cases in which pain was complained of on one side, there was usually much tenderness on the other side. He recalled a case, in which at each menstrual epoch there would be a marked oedema and tenderness over the mastoid. Such a condition must be looked upon as angio-neurotic in character.

Pharyngeal Tuberculosis. Dr. Robert Levy, of Denver, Colo., said that he had preserved records of 162 cases of laryngeal tuberculosis. Of this number 17 showed pharyn-

geal tuberculosis. Ulceration of the hard palate was the least frequent. The severity and course of this affection depended upon the number and location of the areas affected. When several points of attack develop simultaneously or there is an extensive process going on in the lung, the process is rapid; when the posterior wall alone is involved, extension is slow. The co-existence of syphilis he considered to be the most important modifying circumstance. The stages of pharyngeal tuberculosis depended upon the mode of infection. When the infection occurred through the lymph channels, pallor, infiltration, tubercles, ulceration seemed to be the method of attack; where there was a local invasion, there would be an acute pharyngitis, the development of superficial pin-head tubercles, no diffuse infiltration, ulceration. The diagnosis was not difficult in typical cases. In those complicated by syphilis, the character of the ulceration might be puzzling; there would usually be slight pain, and the case would pursue a sluggish course. The finding of tubercle bacilli, the condition of the lungs, and the result of treatment would enable one to make the differential diagnosis. Nitrate of silver, forty grains to the ounce, was useful in the early stage, when the ulcerations were few and small. Curettment and lactic acid had given him fair satisfaction, but the galvano-cautery had proved to be the best of all the agents he had employed. Cocain spray and iodoform insufflation were valuable for home treatment. When combined with syphilis, his experience was in favor of the use of mercury, and small doses of iodide of potassium, rather than large doses of the latter. He had been forced to the conclusion that the Colorado climate was unfavorable to pharyngeal tuberculosis. His conclusions were: (1) That pharyngeal tuberculosis occurred in one and a half per cent. of all cases of phthisis: (2) That there are two sources of infection—(a) local attack on an abnormal mucous surface, and (b) through the lymph channels; and (3) That the severity of the symptoms was modified by the site of the attack, and the existence of laryngeal and pulmonary complications and the association with syphilis.

Disease and Treatment of the Nasal Accessory Sinuses, with an Analytical Report. Dr. Robert C. Myles exhibited some drawings taken in a darkened room in 1893 by means

of transillumination. These had been presented to the Academy of Medicine in 1893. In polypoid cases he had entered the sinuses through the nose many times. About two-thirds of the cases of ethmoid disease were due to polypoid disease, and one-third to atrophic rhinitis, non-syphilitic necrosis, syphilis and neoplastic growths. At the present time, he had three cases of sphenoidal empyema under treatment, and he had come to the conclusion now that the nose and teeth were about equal as causal factors of antrum disease. The simple irrigation tube, and smaller trocar canula he considered invaluable aids to diagnosis. Not so much depends upon the pathology as upon the extent of the pathological process. He thought it was the physician's duty in all acute and sub-acute cases of catarrh to employ either expectant or exploratory treatment. Exploration in antral cases is carried out by irrigation through the natural opening, or through a small artificial one. There were hundreds of cases of sinusitis with muco-pus in which there was no solution of continuity of the membrane. He had operated by almost every method that had been recommended, and all the milder cases had done well. He recalled a case which terminated fatally, in which death might have been averted by suggested operation, which the patient had refused. He had adopted the rule of operating externally in frontal sinus disease when the symptoms were profound and were not relieved by other methods. In extreme polypoid cases. the ethmoid was rather brittle; it was almost flinty hard in the suppurative cases. After removal of the middle turbinated bone, it was his practice to drill or gouge an opening into the cells, and cut away as much of the cells as possible. All his cases had been relieved in this way, and some cured. The sphenoid cells were not so difficult to open as many seemed to think. He did not believe curetting the upper and posterior wall of these sinuses was safe. The cells were from one to one and a half inches in depth. He did not agree with the general surgeons that the antrum of Highmore should be treated as other diseased cavities are treated. Curetting often aggravated rather than helped the condition. Where the tooth appears to be the cause of the trouble he advised removal of the tooth, and penetration through the socket into the antrum. This method was so simple and harmless that is should be made a part of the expectant treatment.

Dr. Phillips, said that he quite agreed with the reader of the paper regarding the etiology of antral disease. He found that the dental profession was very much inclined to follow the teaching of Garretson that almost all antrum cases were due to some defect in the teeth or in the bone. In his opinion catarrhal inflammation of the antrum was not an infrequent disease, but suppurative Inflammation of the antrum was more rare. He did not think it necessary to remove a tooth if the teeth were perfectly sound; it was better to penetrate through the canine fossa. His most recent case had been one without complication from teeth or jaw. The only symptom complained of was that daily about ten o'clock he had quite a free discharge of slightly offensive pus from his right nostril. It was learned his occupation was that of a watch-maker, and that while at work he bent his head downwards and forwards. This condition had lasted about a year and had followed a cold. Examination of nose was negative; percussion over the antrum of the affected side elicited some tenderness as compared with the opposite side. By transillumination he had found that there was a bright area underneath the eye on the left side, and a very dark shadow underneath the eye on the right side. Some observers claimed that transillumination was unsatisfactory, but the reason usually was that it was not properly performed. The observer should note the character of the illumination beneath the eye, the appearance of the light low down being always negative. He would be unwilling to operate in a case with darkness on one side and light on the other side, unless there were other symptoms of antrum disease, but in this obscure case the transillumination had been most helpful. Transillumination is a useful aid, but should not be considered in itself sufficient ground for a positive diagnosis. Cocaine cataphoresis was used in this case, with a current of fifteen volts, A free opening was made into the antrum, and according to the statement of the man the operation was painless. There was a free discharge of pus. Last summer he had seen a man who had rapidly developed an acute sinusitis in the frontal sinus. together with extensive suppurative periostitis over the frontal region, following a violent insufflation of powder on that side, This insufflation had been done in one of the advertising quack catarrh cures in this city. Patient also gave a clear syphilitic history. He had ex-

tensive polypoid development in both nares. An external incision had been made to relieve the extensive cellulitis, and pus was found, and a final sinus into the cavity was left which had continued to discharge. This was underneath the supra-orbital foramen, operation was consented to and he followed Dr. Myles' plan of making the incision. As soon as the opening was sufficiently large, the polypi forced themselves out through the opening that he had made in the frontal sinus. He removed nearly half an ounce of polypoid material from the sinus, and packed with iodoform gauze, and the usual treatment was carried out. Scarcely any deformity followed this plan of opening the sinus. Recently he had been operating upon a cadaver of a colored person, and had been surprised at the extreme smallness of the sinus. It did not extend beyond the supra-orbital foramen, and an attempt to have entered this sinus by the nose would no doubt have entered the cranial cavity.

Dr. G. Hudson Makuen, said that a few weeks ago he had reported a case of unusual alveolar abscess with antral complications. The patient had complained first about pain around the second molar tooth in the upper jaw on the right side. After two or three days a slight sero-purulent discharge made its appearance between the gum and the tooth. A dentist who saw the case, gave it as his opinion that the case was one of alveolar abscess. On opening the tooth he found it apparently healthy. The tooth was devitalized and the pulp removed, but without benefit to the patient. Shortly after this while probing, the dentist passed his probe into the antrum. On removing the tooth, a small pus sac was found midway on the tooth. This sac was half an inch from any infection by way of the mouth, and certainly no infection could have come through the antrum. His experience had been that when a large opening was made at the floor of the antrum, the cavity did not drain through this opening unless there was an obstruction of the natural opening. He suspected that the movements of respiration caused a suction through the nose, and thus accounted for drainage taking place against the action of gravity.

Dr. E. E. Holt, said that he desired to express his high admiration of this paper from the standpoint of the ophthal-

mologist and otologist. In cases of orbital cellulitis one was often brought into contact with the antrum of Highmore.

Dr. Day, said that he had found quite a number of cases in which transillumination showed a shadow on both sides, and sometimes on one side without any other indication of antrum disease. He had therefore become somewhat skeptical as to the value of transillumination in diagnosis.

Dr. Myles, in closing the discussion, said that there were thousands of people in this country who had been suffering for years from catarrh, and from antral disease, and yet they had been treated by very competent physicians. The remark that had been made about the smallness of the frontal sinus reminded him of the fact that some colored people seem to have no frontal sinus, or only a very small one. It was an easy matter in such cases to make an opening directly into the cranial cavity, inadvertently, while operating. In his experience most of the cavities of the nose appeared to drain by a to and fro motion of the air, due to the respiratory movements. Regarding the matter of transillumination, the speaker said that hundreds of people presented a dark shadow beneath the eyes, but in almost any case the shadow could be made to disappear by the use of sufficiently powerful illumination. There were many drawbacks to transillumination, but it was nevertheless a very valuable aid to diagnosis, and one which should not be neglected.

Acute Otitis Media as a Complication of Typhoid Fever. Dr. D. A. Henost, of Pittsburg, read a paper on this subject. He said that when he considered the convenient path way for microbes through the Eustachian tube to the ear, it was not surprising that this affection was so common. As a result of a collective investigation that he had made, he had received reports of 1228 cases of typhoid fever, 575 of which were from private practice, and 653 were hospital cases. He found that very few general practitioners keep records of their cases of typhoid fever, and consequently statistics on the subject were necessarily meager. There were 11 cases of otitis media reported among the former number; and 17 from the latter, Out of 389 cases of typhoid fever occurring in the Johns Hopkins Hospital, it had been reported that there were 8 of acute otitis media. It most commonly de-

veloped from the end of the second to the fourth week, or at the time when the capillary circulation was sluggish, and the patient in a semi-comatose condition. He had not been able to gather statistics regarding the frequency of mastoid complication. In connection with the question of the influence of quinine on the production of otitis media, it should be noticed that one physician who reported 175 cases of typhoid fever, with 5 of otitis media, stated that it was his practice to use large doses of quinine during the stage of hyperpyrexia. The most usual method of extension was from the mouth or nasopharynx into the ear. The chief symptoms of this complication were deep seated pain and tenderness on pressure below the auricle, a feeling of pulsation and also tinnitus. In some cases of typhoid fever there is severe neuralgic pain in the ear, but there is no deep seated pain on pressure below the auricle, and the accompanying changes observed on examination with the speculum are not present. If seen early or in the hyperaemic stage, leeches should be applied to the tragus, and the instillation of a warm solution of boric acid will often be followed by prompt relief. The ear should be frequently cleansed, and as soon as bulging is observed the membrane should be incised. The parts should be kept thoroughly aseptic afterwards. In nearly all cases of otitis media complicating typhoid fever, good hearing has been the result.

The President, said that he certainly thought acute inflammation of the middle ear was a very rare complication of typhoid fever. He did not believe in the use of moist heat in the early stage of the inflammation, because this tended to break down tissue. In his experience dry heat relieved the pain quite as well as moist heat, and was free from the objection just stated. He would also favor incision of the drum membrane before the membrane bulged, as the object was largely to secure depletion. A great variety of germs appeared to be responsible for acute inflammatiom of the middle ear.

Ulceration of the Nasal Septum. Dr. T. C. Christy, of Pittsburg, read a paper with this title. Five cases from his private clinic were given in detail. He said that the onset of the trouble was usually attributed to taking cold; followed by pain over the frontal region; obstruction of nares,

painful vision, abolition of sense of smell and by pain in one or both ears. There were usually signs of acute inflammation over the obstructed nares. In the majority of these cases the lesion originated on the septum, and was communicated to the swollen soft parts by contact. The sodden, macerated appearance of the tissues involved, the thick, slimy discharge, tendency to hemorrhage, the marked physical depression of the patient were among the more prominent symptoms. In one case only was there evidence of specific infection. In one case there was inflammation of the septal cartilage with necrosis of the alveoli of the central incisors resulting in a sinus communicating with both nares. There was no appearance of infection outside of nares except in one case; causing acute laryngitis with threatened periositis of hard palate. In no case was there destruction of the hard palate as so frequently occurs when the septum nasi is involved. Constitutional remedies even in small doses were poorly tolerated in those cases of great physical depression. The galvano-cautery is not a valuable agent in the treatment of these lesions. Tubercular ulcers are, as a rule, secondary, slow in development and painful. Malignant ulcers are painful, and often of an inflammatory appearance and primary origin. Syphilitic ulcers do not invariably bear the typical impress. The nasal septum is exceedingly vulnerable to the pernicious influence of the acute and chronic infectious diseases, and in a lesser degree to any atrophy and exsiccation of its mucous surface by reason of disease or traumatic injury. His observations led to the conclusion that prolonged residence in high altitudes was, in some instances, pernicious to the delicate mucous covering of the septum nasi.

Dr. Levy, said that he must take exception to the statement that prolonged residence in high altitudes was pernicious to the nasal mucous membrane. In an experience of twelve years in a region situated over one mile above the level of the sea, drying, crusting and annoying nasal symptoms had been observed most often among those who had recently arrived, after a time nature met the demand for rapid evaporation of water at such high latitudes, but at first these individuals usually suffered from dryness and excoriation from picking the dried secretions.

Dr. Arthur G. Root, of Albany, said that he knew of no disease which was so amenable to treatment as specific disease, whether in the nose or in any other part of the body. He was firmly convinced that many physicians were disappointed with the results of their anti-specific treatment, because they expected marvelous benefit from simply giving of these medicines without taking into account the general condition of the patient, and what could be obtained by careful hygiene and good nourishment. Some of these patients would be better for a time if the anti-specific remedies were suspended, and reliance placed entirely in hygiene and diet.

Dr. Snow, said that in these cases of tertiary syphilis much of the trouble in managing the case was due to insisting upon the use of mercurials instead of trusting entirely to the iodide of potassium. He stated that he had yet to see a case of ulceration due to the latter stages of syphilis that could not be controlled by iodide of potassium, pushed to the point of intolerance. In cases of ulceration of the septum, not due to the syphilis, he found that careful applications of deliquesced chromic acid acted admirably.

Dr. Holt, said that he desired to heartily endorse what had been said by Dr. Root about the hygienic treatment of syphilitics. In many cases he had gotten better results from iodide of sodium than from the iodide of potassium, the former being better tolerated by the stomach.

Dr. W. D.Johnson, of Paterson, N. J., thought it was somewhat dangerous to undertake to feed up a syphilitic patient, and suspend medication while the disease was actively engaged in dragging him down. He was positive that the combination of iodide of potassium and mercury often acted better than iodide alone.

Dr. Makuen, said that in the past year he had two such cases, in which the diagnosis had been rather difficult. The first was a young woman in whom there was no suspicion of syphilis. A pathologist reported that the case was one of round cell sarcoma, but the operation being unavoidably delayed, the patient was put on anti–specific treatment, and was speedily cured. In another case, that of a man who denied syphilis, he was still in doubt, but was trying anti-specific remedies.

Dr. Levy, said that he was reminded of a case in which

two microscopists had independently examined the case, and had reported it one of round cell sarcoma. This patient had had many of the symptoms of a malignant growth, yet she was speedily cured by anti-syphilitic treatment.

Dr. Christy, in closing his discussion, said that the object of his paper was to emphasize the importance of preserving in every way possible the integrity of the mucous membrane of the nose in all cases, whether surgical or non-surgical.

The Mastoid and Intra-Cranial Complications of Middle Ear Suppuration. Dr. Edward B. Dench, of New York, read a paper with this title. In describing the operative treatment of mastoid disease, he said that he considered that a mastoid operation, done with proper attention to technique, was perfectly justifiable as an exploratory procedure, and was devoid of danger He had operated upon 105 cases of mastoid disease, of which five had died. Three of these were cases in which meningitis occurring before the operation was the cause of death. The other two were due to prior cerebral abscess. In this large number of cases, therefore, not a single death could be attributed to the operation. An absolutely perfect asepsis should be secured, as much care being taken as in preparing for an intra-peritoneal or an intra-cranial operation. The incision was ordinarily made about half an inch behind the auricular attachment, but personally he preferred to begin the incision at the tip of the mastoid,and then carry it toward the insertion of the auricle,following this line close,—at a distance of about one-eighth of an inch. The incision should be carried up to the superior attachment of the auricle. Within the triangular space bounded by two tangents, one drawn to the superior wall, and the other drawn to the posterior wall, and the curvilinear border of the meatus, the antrum could be entered with safety. Drilling should be abandoned, and the opening into the bone made by a chisel. So far as we knew, Dr. E. Gruening had been the first to lay down definite rules for the systematic opening of the mastoid. The first objective point in the operation should be the mastoid antrum. After a probe had been passed from the antrum into the middle ear, it was necessary to remove the tip of the mastoid, and thoroughly explore all the pneumatic spaces of the process. The *aditus ad*

antrum should be carefully curetted, for otherwise the discharge from the ear was apt to persist after the wound had healed. If the incision were made too far behind the auricle, the ear was apt to remain displaced forward for a long time; this was not the case when the incision was made as recommended. In applying the dressing the bone cavity alone should be packed, the margins of the wound in the soft parts being allowed to approximate. If there were no pain or elevation of temperature, he allowed the first dressing to remain unchanged for from five to seven days. If the lateral sinus should be opened, the hemorrhage could be easily controlled by firm packing with iodoform gauze. The speaker also reported a successful case of operation in a patient having leptomeningitis. An incision had been made from the tip of the mastoid over the ear to the external angular process of the frontal bone, He had then entered the middle cranial fosssa, through the squamous portion of the temporal bone. There was a distinct meningitis present at this time, the lesion being most marked over the tympanic roof. There was no purulent accumulation found either in the region of the roof of the tympanum or the lateral sinus. The wound was packed in the region of the tympanic roof, —the two extremities of the incision being closed by sutures. The man had no future trouble, and recovery had been prompt. In doing an ordinary exploratory operation an ample cutaneous incision should be made, and the middle fossa entered through the squama, over the external meatus. In a second case, in which the symptoms did not at first, seem to indicate extensive mastoid involvement, evidences of thrombosis of the lateral sinus appeared suddenly. The patient had a severe chill, the temperature rose to 105.8 F., and there was intense headache, delirium and marked prostration. The febrile movement was followed by a spontaneous fall of temperature to about 99 F. In a few hours the temperature again began to rise, and immediate operation was deemed imperative. The lateral sinus was exposed and was found to be filled with a firm clot. This was removed by means of the curette until free hemorrhage occurred from both the upper and lower ends of the incision of the sinus. The sinus was exposed, and incised from just above the jugular bulb to within about an inch and a half from the torcular Herophili. The entire wound was packed with iodoform gauze, and the usual antiseptic dressing applied.

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There was no subsequent rise of temperature, and a perfect recovery followed.

Dr. Dench,n in closing the discussion, said that some operators used the burr, but that this was employed for a very different purpose from that for which the drill was used by the earlier operators. The object in the old "drill operation" was to simply enter the antrum through the cortex, no attempt being made to remove the carious bone.

Dr. R. C. Myles, said that during the last few years he has been studying this subject, and has operated between one and two hundred times on the cadaver. The points made regarding the method of making the incision and reaching the antrum were particularly valuable. He raised the question as to whether we should chisel at the upper level of the osseous margin or at the centre. His plan was not to destroy the upper posterior parts, but to expose the cells just posterior to the osseous canal, and extend the opening in a spiral manner upward, inward and forwards through the antrum into the attic. The approach to the lateral sinus could usually be determined by the great hardness of the bone, and the bluish color of the part.

Dr. W. B. Johnson, said that there were times when it was very difficult to secure absolute asepsis. He had been greatly interested in the case of leptomeningitis which had recovered after operation, yet he felt that it would be extremely rare for recovery to follow in cases in which meningitis or cerebral abscess existed prior to the operation.

Dr. Richard Frorhington, of New York, remarked that some very good operators still used the drill, and that it would hardly be classed as a "relic of barbarism." Neither did he think that, even if all aseptic precaution was carried out, surgeons can feel or are just as happy and safe if they accidentally exposed or enter the lateral sinus, or cerebral cavity, as when they confine their operations to the mastoid cells.

Dr. Arthur G. Root of Albany, presented **a caae of bileral hemorrhage from the labyrinth through the external auditory canal due to cranial fracture.** Family history as follows,—father alive and well at the age of seventy; mother died of exhaustion at the age of seventy years; four sisters died in infancy; one living and well; four brothers dead, cause unknown. Personal history is that he has always been a strong boy, and has never had an illness which con-

fined him abed. Present history dates from Nov. 4th, 1895, at which time he was working at masonry, being on a scaffold about 14½ feet from the ground. This scaffold suddenly gave way, and he fell striking on his forehead about four inches from the right eye. When found he was not unconcious, but was unable to rise. He was bleeding from a contused wound on forehead, and no fracture was found. Soon after arriving at hospital he became unconscious, vomited, and soon serobloody fluid escaped from the ear, and he bled from the nose. He says when he fell his hearing left him with a Z - - - He remained in bed for about fourteen days; was semi-unconscious for about forty-eight hours. He complained of severe headache for first week. This headache was principally located in the occipital region and back of neck. Then headache became spasmodic. He complained of cold feet most of the time. Every time he would rise in bed he became dizzy. After second week he sat up some, but was not able to get about much. He slept very much; breathing stertorous. Toward the last he would awaken, and would tell of troubled dreams he had while asleep. At present he has buzzing in ears and waving of water and hissing like steam. When these noises stop he can hear vibration as of one walking or of a train of cars,—says he has heard noise of coal when being put in a stove. The principal features of interest are that the loss of hearing is absolute, and upon both sides; furthermore, there seems to have been at no time any involvement of either facial nerve.

Diagnosis: Fracture at base with hemorrhage into the labyrinth upon both sides.

At the Executive Session of the Society the following officers were elected:

President: Frank Hyatt M. D., Washington, D. C.

Vice President: Frederick L. Jack M. D., Chairman Eastern Section, Boston, Mass.

John S. Mabon M. D., Chairman Middle Section, Allegheny, Pa.

James E. Logan M. D., Chairman Western Section, Kansas City, Mo.

William Scheppegrell M. D., Chairman Southern Section, New Orleans, La.

Secretary and Treasurer: Robert C. Myles M. D., 46 West 38th Street, New York City.

REPORT OF PROCEEDINGS OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.*

EIGHTEENTH ANNUAL CONGRESS.

HELD AT PITTSBURG, PA., MAY 14 TO MAY 16, 1896, PRESIDENT, DR. WM. H. DALY, OF PITTSBURG.

President's Address.—The president welcomed the association and traced some of the great advances the science of laryngology had made during the past few years. He dwelt upon the enviable standing attained by the specialty, but advised the members of the association to keep up their interest in general medicine. He paid a high tribute to the genius of Manuel Garcia and deplored the recent death of Dr. Wilhelm Meyer, whom all the world mourns.

Etiology of Deviations of the Nasal Septum, by Dr. John N. Roe, of Rochester.—Causes of deviation are predisposing and exciting. Under the former are diathesis (struma, tuberculosis, syphilis, rachitis, cretinism) and racial characteristics. Civilized people suffer more from deviations than do the primitive races. The aquiline type of nose is frequently thus affected. Exciting causes include disease of the septum or other parts of the nose, and defective development. The vomer is formed from two laminæ with intervening cartilage, in which ossification begins as early as the sixth week of fetal life, and proceeds from behind forward, and the coalescence of the laminæ is completed by the third year. Sometimes it does not happen at all. The slightest irregularity of development leading to the hypertrophy at any point tends to

*Abstract by W. Scheppegrell, M. D. and T. Melville Hardie M. D., from the reports contained in American Medico-surgical Bulletin, the Journal of the American Medical association and the report of Henry Booker Mills, M. D., official stenographer of the association.

push the plate over to the other side. A similar effect is produced by hypertrophy of the cavernous tissue of the septum as well as of the inferior turbinated. Malformation of the superior maxillæ, highly arched palate, and heredity must also be looked upon as causes. Occasionally displacement occurs from uneven development of the whole face.

Where deviation occurs the turbinated bodies on the larger side are generally hypertrophied. This is the effect, and not the cause, of the septal condition, and hypertrophy is caused by the excessive amount of air passing through the over-patent nostril.

Anterior deviations are caused by chronic turgescence of the mucosa, growths, results of operations, dislocation of the triangular cartilage, and flattened alæ. Trauma, also, is a powerful factor in deviations. It is more frequent in males of all ages, and callus generally forms on the convex side. Intranasal disease, leading to crusts, etc., and causing the patient to always blow the nose with the same hand or to pick one side of the nose, acts in the same way.

The Operation for Deviation of the Nasal Septum.—Dr. A. W. Watson, of Philadelphia, read the paper. Any operation, to be successful, requires breaking up the resiliency of the cartilage. Many procedures fail because they do not provide for the reduction of the amount of tissue necessary to convert a bent septum into a straight one. This should be done by removing a portion of the tissue in the general line of deviation. If the latter is horizontal, we must take out an elliptical piece gradually convergent at either end; if vertical, a wedged-shaped piece, with apex above, extending as high as possible with its base near that of the septum, where it may be joined by a horizontal incision. The excised portion should always include the protuding angle. The mucous membrane must not be cut on the round side, as it helps to hold the edges. Incision must therefore be made on the convex side, followed, if necessary, by the use of crushing forceps.

A second necessary feature is the proper retention of the parts. The writer prefers a flat pin with a ring head covered with rubber tubing, inserted from the concave side, passing diagnolly through to the other side, across the vertical incision if existing, and then back again into the septum until the head lies on the latter, care being taken to avoid deflection in

the opposite direction: In this way both sides are left free for cleansing and respiration. Padding up the pinhead prevents ulceration, and it may be worn for three weeks or more without discomfort. If bony deviation exists, a gauze pad may be used between the septum and the outer wall.

Discussion was opened by Dr. E. Fletcher Ingalls, of Chicago, who thought the effect of trauma was overestimated, and that nutritive changes were the most frequent cause of deviation.

Dr. M. J. Asch, New York, referred to his well-known operation. It might leave some intranasal roughness, but the patency of the occluded nostril was restored.

Dr. S. O. Van der Poel said that in his hands, the pressure of the pin had caused pain and even ulceration. Perforation had sometimes resulted at the junction of the two incisions.

Dr. Carl Seiler, Philadelphia, believed that if the pin was inserted from the outside of the nose at the notch of the nasal bones, and passed down to the cleft between the palatal process of the superior maxillæ, the upper end should be left projecting above the skin so as not to be covered over by the swelling of the soft parts. He considered Dr. Asch's operation nothing more than a modified and elaborated resume of one originally introduced before this association by Dr. Glasgow. In his opinion the pin operation was the most successful method of securing a splint for the fractured septum without producing necrosis.

Dr. D. Bryson Delavan, of New York, had discarded the use of pins. He believed that mouth breathing would produce septal deviations.

Dr. W. E. Casselberry, Chicago, believed in the influence of heredity. No one operation will answer for every case. We must take account of the age of the patient and of the anesthetic employed.

Dr. W. K. Simpson, New York, would extol the value of the Asch operation. It was bad surgery to plug the nose with gauze to act as a retaining apparatus. He used splints in both nostrils at first, and they served admirably to check hemorrhage.

Dr. C. M. Shields Richmond sawed off the convexity before attempting to straighten the septum.

Some Reflections upon Atrophic Rhinitis, by Dr. W. Peyer Porcher, Charleston, S. C.—The writer regards this affection as not a disease *per se*, but as a result of preceding inflammation ending in a purulent discharge which washes away the epithelium and destroys the mucosa. In one case he has had good results from the use of an iodine-iodide solution which caused hypersecretion and greatly lessened scab-formation. It was applied to the nostrils on cotton tampons.

Dr. Seller regarded the Gottstein cotton tampon as our most efficient resource. It needed no medication, and the secretion it excited would moisten the inspired air, which would also be strained by the cotton.

Dr. Thomas Hubbard, of Toledo, was accustomed to wrap around the shrunken turbinate cotton moistened in an alcoholic solution of acetanilid.

Dr. C. C. Rice, of New York, relied on washing and oiling the nose.

Dr. G. A. Leland, Boston, used antiseptics and cocaine in the nose for its secondary effect of relaxing the vessels. The addition of resorcin to the cocaine solution lessened the danger of system effect of the latter.

Dr. Roe employed weak silver-nitrate solutions and a galvanic current. We should look to the accessory sinuses, for scabs do not come from mucous membrane alone.

Dr. J. E. Nichols, of New York advocated the use of a 10-per cent. solution of ortho-chlorphenol. Dr. J. N. Mackenzie objected to the use of cocaine in any case. Dr. Fletcher Ingals believed that undoubted benefit was derived in certain cases from the use of one or two grains a week. Yellow oxide of mercury has done much good in many of his cases.

Recent Progress in the Treatment of Malignant Disease of the Larnyx, by Dr. D. Bryson Delanvan, New York.—Three operations are now well established: (1) Thyrotomy, with or without partial laryngectomy; (2) the Solis-Cohen method of complete laryngectomy (removal of entire larynx and insertion of the severed end of the trachea to the external edges of the cervical incision;) (3) complete laryngectomy in cases of extensive disease with glandular involvement. He alluded to Buttin's rules regarding the indication for operation, and discussed the rules of procedure and after-treatment applicable to each of the three procedures. He highly extolled

the advantages of the Solis-Cohen method as promising: (1) Because it lessened the danger to life from inhalation pneumonia; (2) it allowed of easy deglutition; (3) there was a fair possibility as to recovery of voice without the use of any artificial apparatus; and (4) an increase in the patients with an avoidance of disfigurement, and the avoidance of an artificial apparatus.

As to the third operation, there is some analogy to the operation for mammary cancers. We have a more restricted field in which to work, but freer access to the glandular enlargements. Preliminary tracheotomy should be done several days before the laryngectomy, and the patient must be of good vietity, free from any physical defect likely to complicate recovery, of suitable age, and in circumstances assuring proper after-care.

The recent advances made have come from the combined labors of the laryngologist and of the general surgeon, who have together given long and close study to the problem. Operation should not be lightly undertaken by those unfitted for the work, as they bring reproach upon themselves and discredit upon the operation.

Naso-Pharyngeal Fibrous Tumors, by Dr. E. Fletcher Ingalls, Chicago.—The paper consisted of the history of a boy, aged 11 years, in whose right cheek there had been a fullness for some four or five years, and whose nostril on the same side was occluded by a mass, causing the usual obstructive symptoms. The latter was removed with a galvano-cautery écraseur with considerable hemorrhage, checked by plugging with lint. The swelling in right cheek under the zygomatic arch, measuring 2 x 3 ctm., was treated by submucous injections of lactic acid 15 min. of a 25-per cent. solution containing 3 per cent. of carbolic acid in 12-per-cent. glycerin. (These injections were repeated at varying intervals, and finally about two thirds of the mass of the growth was removed, leaving an indurated nodule in the upper and back part of the cheek. By the wire écraseur about 90 per cent. of the original growth was removed. Dr. Ingals is encouraged to believe that lactic acid will prove of service in many cases where the knife and galvano-cautery are inapplicable.

Naso Pharyngeal Fibromata, by Dr. Charles M. Shields, of Richmond, Va.; with slides and photographs of two cases:

CASE I.—White male of 23 years. Firm tumor filling naso-pharynx, attached to vault and posterior and left lateral wall; also filling left nostril, attached to external wall of latter for half its length. The septum was crowded over, occluding right nostril, producing "frog face" and "dead" voice. Cocaine 10 per cent. was used hypodermically in left nostril, and a cold-wire loop introduced through the latter down through the naso-pharynx, where it was then moulded into a large loop. The two ends of the wire in the nostril were then passed through the cannula of a nasal snare and tightened up. After a slowly increasing traction of five hours the wire broke. The next day the same procedure was repeated with the wire of a galvano-cautery snare, and the growth removed in a few minutes. It was $1\frac{1}{4}$ by $1\frac{3}{8}$ in. Fourteen months later a piece the size of a grain of corn was removed from the nostril, and cautery applied to a thickened area at the site of the original implantation in the pharynx.

CASE II—Negress aged 48. Fibromata in this situation are rare in women, and the writer has not found and previous record before in the negro race. The growth filled the entire naso-pharynx, but there was no nasal attachment. Microscopial diagnosis, pure fibroma. The soft palate was pushed well forward. Electrolysis for five weeks without result. Case still under treatment.

Dr. Shields believes that nearly, if not quite, all such growths can be removed through the natural passages. Resection of the superior maxilla is not often necessary. Ligatures, thermo-cautery-caustics, evulsion, etc., are not to be at all considered. Reliance must be placed upon either the hot or cold snare. The use of irido-platinum wire, on account of its stiffness, offers a great advantage. The current should be used with frequent interruptions so that the patient is not exhausted, and so that pain may be minimized and hemorrhage avoided. The cold wire often breaks if the growth is very hard. Moreover, the initial current in the hot wire makes a groove in broad-based masses, so that the danger of the wire slipping is very much lessened.

Discussion on the Relation of Diseases of the Nose and Throat Disorders of the Digestion. ACUTE DISEASES OF THE NOSE AND THROAT.—Dr. M. R. Brown, Chicago. The writer enumerated the various pathological conditions of the

throat which come on acutely in disordered states of the gastro-enteric tract. These include edema (sometimes angioneurotic,) laryngeal hemorrhage, various acute catarrhs associated with liver conditions, etc. On the other hand, the stomach is often upset by swallowing the secretions from sores in the throat. Spasm of the glottis may be caused by upward pressure of the diaphragm from gastro-enteric distention. The throat lesions of typhoid fever are well defined, including lesions varying in severity from hyperemia to loss of tissue, edema infiltration, ulcerations, and perichondritis. There is no proof of the direct inflammation of the throat by throat disorders, but clinical facts strongly suggest this.

CHRONIC DISEASES OF THE NOSE AND THROAT.—Dr. T. R. French.—It is well known that chronic throat, nose, and ear cases are generally accompanied by digestive disturbances, though we cannot always demonstrate the relation between cause and effect.

Rapid eating is an American habit, and certain naso-pharygeal disorders, common in this country, may result directly therefrom. Many acute catarrhs result from causes which first act npon the digestive organs. Observation on 50 medical students showed all with catarrhal faucitis and pharyngitis; 47 had digestive disturbances, 14 were constipated, only 1 had a clean tongue, 45 were rapid eaters, 33 were smokers, 16 had nasal obstruction, 2 were mouth-breathers. There was no difference between the throats of the moderate smokers and of the non-smokers. The part of the throat affected seemed to bear no relation to results of chemical analysis of stomach-contents. Disordered stomachs and bowels often caused reflex vaso-motor disturbances in the throat.

A Case of Gunshot Wound of Pharynx reported by Dr. D. N. Rankin, of Allegheny.—The patient had lived nearly 50 years after a shot wound of the pharynx, in which the ball penetrated about two inches below the lob of the right ear and, passing across the pharynx, escaped at the corresponding point on the left side.

Contribution to the Pathological Anatomy of Ethmoid Disease, by John H. Mackenzie, M. D., of Baltimore. —The writer gave the histories of several typical cases and reports of tissue removed from the middle-turbinate region in the course of operation. This was generally called

myxomatous tissue, but he would take strong exceptions to such a use of the term. He advanced the following propositions:

1. The degeneration known as myxomatous is not a mucoid change, but a result of simple inflammation. Myxomatous polyps are nothing but edematous fibromata, and represent a degenerative change characterized by infiltration of round cells and the formation of a low grade of connective tissue.

2. This wrong use of the term has came from the fact that we have considered the question clinically, and have neglected to subject the tissue removed to microscopical examination.

3. The long continuance of an ethmoiditis, even though purulent, may not cause any bone lesion. Pent-up secretion may cause osteitis, but not necrosis, as is stated by many writers.

4. The various changes found in this condition of ethmoiditis are only different stages of the same process, and hence do not need different names.

5. It is difficult to distinguish between the round-celled tissue found in these cases and true sarcoma. Hence, before making our diagnosis, we must examine different portions and depths of the tissue removed.

Study of Irruptions of the Teeth into the Nasal Chambers RESUME OF REPORTED CASES, AND REPORT OF ADDITIONAL CASES. — Paper by A. W. MacCoy, M. D., of Philadelphia. — The writer gave a bibliography of cases reported to date and narrated some additional cases of his own. Frequently these cases are discovered accidentally in a search to account for some purulent nasal discharge. Teeth in the nose may cause, by reflex influence, cough, and even laryngeal spasm. In one of the writer's cases a tooth was discovered in a nostril which was the seat of a sarcoma, and the question was suggested as to whether or not the irritation of the tooth had been the exciting cause of the malignant formation.

Tuberculosis of the Larynx, with Results of Treatment as Far as Ascertained THE TOPICAL USE OF BROMOFORM, FORMALDEHYD, GUAIACOL, AND PROTONUCLEIN, by S. Solis-Cohen, M. D., of Philadelphia. — In treating tubercular laryngitis, the writer first uses a spray of H_2O_2 and then an alkaline detergent. The formaldehyd occurs

in commerce as a 40 per-cent. solution called formalin. By use of water as a diluent solutions of formalin are made of various strengths up to 10 per cent., which is the strongest one used. The solutions are kept made up, as they cannot be well prepared extemporaneously. A 4-per cent. cocaine solution is first applied, and then the subsequent burning pain is very slight. The remedy has seemed to reduce cough, and lessens pain. Topical applications of bromoform produce a certain amount of local anesthesia. Cases were related in which the use of the various remedies enumerated in the title of the paper had seemed to produce beneficial results. Ulcerations were healed and infiltrations removed.

Dr. Gleitsmann said that he had used parachlorphenol in 2-per-cent. solution with much satisfaction. A shriveling and removal of infiltration took place. In this respect it was superior to lactic acid, which was especially applicable to ulcerated areas. The best way to prepare the solution was to use equal parts of glycerin and water as a vehicle.

Some of the unusual Manifestations of So-called Catarrhal Laryngitis.—Paper by Dr. C. C. Rice, of New York.—The author's conclusions were as follows:

1. There are two ordinary types of catarrhal laryngitis, the one following and dependent upon nasal obstruction, and the other upon a laryngitis sicca—an extension downward of atrophid rhinitis and dry pharyngitis. In these two processes the same pathological condition exists from the commencement of the nose to the bronchial tubes.

2. Occasionally we see laryngeal disturbances which from their appearance might belong to one of these two ordinary types, but the significant point is that they are present when the nose and pharynx are in excellent condition, or, still again, that the laryngeal disorder, although in kind like that of the nose, is much greater in degree, which is the reverse of the usual condition.

3. There are several disturbances usually classified under "catarrhal" laryngitis" which seem to bear little or no relation to a previously existing nasal or pharyngeal disease. They are commonly observed in singers and public speakers, and are undoubtedly caused by over-use of the voice and improper methods of breathing and of tone-production.

4. We may also find:

(*a*) General tissue-atrophy of the pharyngeal and laryngeal soft parts, which produces a disordered relation and a muscular weakness of the larynx;

(*b*) A permanently enlarged and usually congested epiglottis, the larynx as a whole being normal;

(*c*) "Choked voice" caused by actual enlargement of the ventricular bands;

(*d*) Permanent, and perhaps congenital, vascularity of the vocal bands;

(*e*) Localized congestion of some portion of the larynx, indicating probable over-use of the transverse arytenoideus;

(*f*) "Singer's nodes" from incorrect vocal methods, cured by proper breathing and singing;

(g) Muscular fatigue, evidenced by hoarseness and loss of voice.

5. These various disorders should be recognized by proper names, their etiology appreciated, and they should not be confused with the phenomena of a simple catarrhal laryngitis.

6. Little dependence can be placed upon topical treatment unless special care be given to proper methods of breathing and voice-production.

Dr. de Roaldes had noticed redness of the cords in persons able to sing perfectly well. Such a condition was more common in persons of the rheumatic or gout tendency and in bassos and baritones.

Discussion on the Sequelae of Syphilis and their Treatment, Dr. Chas. H. Knight, New York, said that the diagnosis of late syphilis of the nose is often obscure. Syphilis is responsible for a certain proportion, but by no means for all the perforations of the septal cartilage met with, when the bone has been attacked, two problems have to be met: 1, When and how to remove the diseased bone, and 2, How to remedy the resulting deformity. The author advocates conservatism in dealing with sequestra, unless they are quite detachedand accessible. If located high up in the ethmoidal region, it should be approached with great caution. The external deformity resulting from the loss of the cartilage is often not noticeable, from the destruction of the external skeleton is frequently hideous. This may sometimes be remedied by Martin's platinum bridge or one of its modifications. Before applying it, it is important that the active stage of the disease

should have long been passed, and that the patient should have had radical treatment.

The paper concluded with a reference to the use of a simple plate of platinum slipped under the skin of the dorsum of the nose, the dissection in preparing a bed for the metal having been carried on through the nostril, a much simpler method and one which may prove to be equally effective in conditions of moderate deformity.

Discussion was continued by Dr. J. E. Nichols, of New York, who spoke upon the question as affecting the pharynx. Syphilitic destruction of the uvula or tonsils did not greatly matter, but perforation of the soft palate is quite another thing. Destruction of the epiglottis may give no trouble. Adhesions of the pharyngeal wall to the inferior faucial pillars may cause difficulty of articulation and interfere with lingual movements.

In adhesion of the soft palate to the pharyngeal wall the use of caustics should carefully be avoided as they increase adhesion. Potassic iodide should be regularly given. The symptoms of adhesion are: impaired voice, mouth breathing, traction on the orifices of the eustachian tubes, traction, causing aural complications, even otitis media, anosmia, and accumulation of muco-pus in the pharynx.

As to treatment, the cautery and knife have both been employed with subsequent digital or instrumental dilatation. There is always great liability to a return of the deformity. The writer then described the operation devised several years ago by him for the relief of adhesion between the soft palate and pharyngeal wall.

Dr. W. K. Simpson spoke on the question as related to the larynx. He said that the word "sequelæ" had somewhat of a peculiar significance as applied to syphilis. In this disease, what we call sequelæ are in reality the later manifestations of the disease, occurring in regular order unless prevented by treatment. We may have: 1st, acute exacerbations coming on in long-continued tertiary cases; 2d, active tertiary outbreaks with structural changes still going on; 3d, syphilitic lesions on other parts of the body, with chronic laryngeal hyperemia, possible thickening, retained secretion, and hoarseness from over-use of the

parts; and 4th, changes which are excited by climate and occupations.

In laryngeal obstruction occurring suddenly in the adult, we may find a smooth, uniform swelling, which covers a gumma, a perichondritis or a subglotic stenosis. In many of these cases the intralaryngeal injections directly into the substance of the tissues may effect good results. Tracheotomy may be necessary in threatening cases. Dilatation is a procedure of great value and this can best be done by intubation. The constant pressure of the tube produces absorption and may wear out the tendency of the stenosis.

Dr. John O. Roe had found the most serious nasal conditions in children with hereditary syphilis. The entire septum and even nasal bones may be destroyed. In adults, abscess of the septum frequently results, leading to destruction of the sesamoid cartilages. He was accustomed to repair these cases by a subcutaneous flap operation.

Dr. Roaldes believed that nearly all the advantages of the Rouge operation could be obtained by intra-nasal perforation of the sequestrum by drilling and crushing with the forceps.

Dr. Ingalls had found syphilitic ulcerations of the cartilage rare unless the bony septum was also involved. From five to ten per cent. of perforations were probably syphilitic.

Dr. Porcher spoke of the nasal appearance in leprosy. He advocated in syphilis the use of mercury controlled by minute dose of opium.

Dr. Hubbard believed that mercury is apt to cause increased destruction of cancellous tissue unless we can keep the parts affected perfectly free. Dr. Delavan called attention to the risk of primary and secondary hemorrhage after operation in these cases.

Two cases of Sarcoma of the Nasal Chambers and Accessory Sinuses, by Dr. A. A. Bliss, Philadelphia.

Case I.—Child aged four, with left nostril obstructed from first year with polyps, which were removed, but recurred in six days. In the next eight months over thirty such removals had been done. When first seen by Dr. Bliss left nostril was occluded, septum pushed over to the right, left eye-ball protruded, but no glandular enlargements. Antrum opened and found full of a fungoid mass

which was cleaned out. Considerable hemorrhage followed, checked by gauze plugging. No recurrence of growth, but in six weeks glands under the jaw became involved, and symptoms arose suggesting involvement of brain and respiratory centers. Death six weeks later.

Case II.—Child of nine years. Occlusion of left naris; enlarged cervical glands and exophthalmus. It was stated that the boy had been well up to three weeks before. His bad general condition precluded an operation.

Read by Title.—During the congress the following additional papers were read by title:

"A Case of Myxedema of the Throat," by Dr. J. W. Farlow, of Boston.

"Tracheal Stenosis," by Dr. Samuel Johnston, of Baltimore.

"The Treatment of the Early Stage of Diphtheria," by Dr. S, H. Chapman, of New Haven.

"Erysipelas of the Air-passages," by Dr. Wm. Porter, of St. Louis.

"Some Observations on Laryngeal Tuberculosis," by Dr. S. O. Van der Poel.

"Reflex Epilepsy from Lymphoid Disease of the Pharyngeal Vault," by Dr. U. G. Hitchcock, of New York.

Elections.—At the executive session the following were elected active fellows: Dr. Emil Mayer and Dr. W. F. Chappell, of New York; Dr. T. Melville Hardie, of Chicago; Dr. G. V. Woolen, of Indianapolis; and Dr. Ward, of Pittsburg.

Officers elected for the coming year are: President, Dr. C. H. Knight, Dr. T. Morris Murray, of Washington; second vice-president, Dr. D. N. Rankin, of Allegheny; secretary and treasurer, Dr. H. L. Swain, of New Haven; librarian, Dr. J. H. Bryan, of Washington.

The Prophylaxis of Nasal Catarrh, by Dr. Carl Seiler, Philadelphia.

The earliest causes of nasal catarrh in childhood are primary over-clothing, and consequently overheating of the body. The neglect of repeated attacks of acute coryza tends to develop a chronic catarrhal condition. When an acute coryza has developed, the accumulation, inspissation and putrefaction of the mucus should be at once prevented.

The same care should be given to the nasal mucous membrane that is now given to the teeth, and a normal condition of that tissue should be the rule rather than the exception.

A child should therefore be taught as early as possible to snuff up a warm saline solution into the nose, and this method is preferable to the use of an atomizer or douche on account of its simplicity. It is important in catarrhal cases to give great attention to the proper feeding and clothing of the child so that the general system may not be overheated. The skin of the neck and arms be so hardened by cold water applications in the form of cold sponging night and morning that moderate exposure will not give rise to acute coryza.

Laryngeal Photography with the Aid of the Arc Light. Dr. T. R. French, Brooklyn, having had unsatisfactory results with the sunlight as the illuminating agent, has recently called to his aid the arc-light, and with the most gratifying results, not only with the larynx, but also with the naso-pharynx and posterior nares.

The necessary outfit consists of a 2000 candle power arc light partly enclosed in a metal box, the anterior face of which bears a condensing lens at a distance of 9 inches from the box, lens giving a focal distance of 20 inches. The lamp and accessories are fitted to a narrow board attached to a table with a device for raising and lowering the light. A shelf below the table carries the rheostat. The matter of technic is the same as with the sunlight condense, (see *N. Y. Medical Journal*, Dec. 13, 1894.)

Spindle-celled Sarcoma of the Nasal Passage. Dr. J. E. Boylan, Cincinnati reported a case of sarcoma of the nasal passage which was offered as a contribution to the accumulating number of those which tend to modify a hopeless prognosis of sarcoma in this region.

The patient, who had suffered from repeated and obstinate epistaxis and occasional acute pains in the head, presented a broad and flattened nose with a noticeable bulging under the margin of the left nasal bone. Upon tilting up the tip of the nose, an irregular brown-red mass at once became visible, filling in the cavity almost to the anterior opening, which was found to be limited by the

posterior nares behind and to spring from the side wall. Circumstances prohibiting a more radical operation, the growth was removed with the wire ecraseur in two sittings and the site of the attachment thoroughly curetted. The removed growth appeared as a soft liver-colored tumor of irregular surface, of about the size of a hen's egg having apparently originated in the inferior turbinated body. Expert microscopic examination showed the growth to be a spindle-celled sarcoma. A careful examination two years later showed no signs of recurrence.

Tubercular Infection of the Lymphoid Tissues in the Pharynx, with some Remarks on Laryngeal Infection. Dr. Jonathan Wright, Brooklyn, has repeated the experiments of Dieulafoy in 12 unselected cases of inoculating guinea pigs with tonsils and adenoids which in each case were examined histologically and bacteriologically with negative results. Tubercle bacilli having been found by Strauss and others in healthy throats and noses, he is inclined to think that Dieulafoy's results were due to surface contaminations, as suggested by Cornil. Dr. Chappel had a case of tuberculosis of the naso-pharynx following an operation for adenoids. Tissue taken from this and subjected to the same examinations as in the 12 unsuspected cases was found by Dr. Wright to contain tubercle and tubercle bacilli histologically, while Dr. Park, by animal inoculation, also obtained positive results. This goes to prove that Dr. Wright's methods were not at fault in the 12 cases that were supposed clinically to be non-tuberculous.

In making sections of tissue taken from a tubucular larynx, he met with indisputable evidence of the penetration of the intact epithelium by bacilli, but whether this is possible in healthy throats he is not prepared to say.

The Control of Hemorrhage in Some Operations in the Nose and Throat.—Dr. A. Coolidge, Jr., Boston, states that the Ross position, with the head hung perpendicularly over the end of the table, although preventing the blood from entering the lower pharynx, is to most operators awkward and unsatisfactory. The most useful position for operating in the upper respiratory tract is with the patient sitting in a chair opposite the operator. By inclining the head well forward, blood rom the mouth and naso-pharynx

flows outward, but it is absolutely necessary, in using this position, that there should be sufficient assistance to control the patient. It is, therefore, much easier in the case of children than with adults.

For the local control of bleeding, where the bleeding vessel cannot be found, compression offers the best means; styptics are to be avoided if possible, as being unreliable, a loss of time and irritating.

Hemorrhage from the nasal cavity can usually be stopped by plugging through the anterior nares. Hemorrhage in the naso-pharynx is controlled by filling the cavity with gauze from below, by the same method as is employed for plugging the posterior nares.

Dysphonia Spastica (read by title).—Dr. F. I. Knight, Boston, reported a case of the intermittent form of this affection, a condition which he had never met before. The patient, a clergyman, would speak in a normal voice for half of his sermons, and then, presumably being tired, lapse into the characteristic high-pitched voice of dysphonia spastica. At his interview with Dr. Knight he spoke throughout in a normal voice.

A Case of Unusual Laryngeal Growth.—Dr. J. W. Gleitsmann, New York, mentioned the case of a patient, a street merchant, aged 38, who had been hoarse for one year but had had no emaciation, pain, cough or dysphonia. No glands were enlarged. In the larynx, on the right side, a large, almost snow-white mass, extending horizontally almost the entire diameter of the larynx from the anterior commissure to the arytenoid cartilage. It appeared to be located between the true and false vocal cords, and looked exactly as if a bunch of cotton had been inserted all along the ventricle of Morgagni. The movement of the right side of the larynx was practically unimpaired, and adduction of the cords was perfect. A histological examination of a piece of the growth removed by a curette, showed it to be a *papilloma durum*, probably malignant and perhaps carcinomatous.

Dr. Gleitsmann called attention to the great rarity of this form of tumor in the larynx.

A Remarkable Case of Fibro-chondroma of Brochial Origin, or so-called supernumerary ear, removed from the

throat of an infant of six weeks, by Dr. A. W. De Roaldes. The case reported by the author is the most unique and only one of a similar nature reported in this country.

Acute Disease of the Lingual Tonsil (read by title).—Dr. H. L. Swain, New Haven, has become convinced that acute lingual tonsilitis is often the cause of symptoms which are referred to other parts of the throat, simply because the latter are more often inflamed and more easily seen. He distinguished three varieties of acute inflammation of the lingual tonsil: The simple, the follicular, and the peritonsillar or phlegmonous. The symptoms are the same as in other acute diseases of the throat, modified by the difference in the locality affected. An irritable cough is often present in these cases and persists long after the other symptoms have subsided.

When the deeper tissues are affected much severer symptoms arise, principal among them being the involvement of the epiglottis and glottis. In such cases life might be endangered, and prompt and radical measures are necessary.

In regard to treatment, the author advises local application of boro-glycerid, followed by a powder containing tannin and a small amount of morphia sulphate, and frequent hot demulcent gargles.

Treatment of Acute Laryngitis and Bronchitis (read by title).—Dr. Thomas Hubbard, Toledo, called attention to the essential features of acute inflammation of the middle respiratory tract. Hyperemia of the bronchial membrane, with more or less swelling, produces a condensation of the cellular tissues, since the same number of epithelial cells occupy smaller area in proportion as the caliber of the tube is lessened. This is one reason why it is so difficult to reestablish mucous flow, the outlets of the glands being closed. Retained mucous ferments and becomes acrid and irritating, whether within the substance of the membrane or in the tubes.

The primary indication is to establish a free flow of mucus. Apomorphia in $\frac{1}{30}$ grain doses, repeated every two or three hours, is the best relaxing expectorant. Except in very severe cases, and in debilitated subjects, it is rarely

necessary to follow with stimulating expectorants. Where relaxing expectorants are judiciously administered there is much less indication for opiates. All forms of abortive treatment are deprecated.

Report of a Case of Squamous Epithelioma of the Velum Palati Cured by the Injection of Caustic Potash.—Dr. Thomas Hubbard stated that for more than a year the tumor, of flat, tubular type, situated partly in the velum and partly in the anterior pillar of the fauces on the right side, had resisted local and constitutional treatment at the hands of several physicians. The cocain habit had been established. In August, 1894, he was on the verge of collapse from malnutrition, when injections of caustic potash were commenced and a conical shaped part of the tumor destroyed. Lesser injections were repeated wherever proliferating epithelial growths were seen around the edges. Cicatrization was rapid, and so was the improvement in the general health. There are no signs of return now, nearly two years after the first injection.

A Case of Perinchrondritis of the Left Crico-arytenoid Joint, from an Unusual Cause.—Dr. H. S. Birkett, Montreal, referred to a young man who contracted gonorrhea and was attacked by inflammatory rheumatism during the course of this trouble, affecting the knee, ankle and left shoulder joints, he developed a soreness and difficulty of swallowing, situated at the left side of the throat. Upon examination, the mucous membrane over the left crico-arytenoid joint was swollen and edematous, and the movements of the vocal cords on this side were slower than those of the right. Pressure over the affected joint was very painful and the voice was hoarse. The treatment consisted in the constant application of Leiter's ice coil, which afforded the patient a great deal of relief.

ABSTRACT OF THE PAPERS AND DISCUSSIONS BEFORE THE SECTION ON LARYNGOLOGY AND OTOLOGY OF THE AMERICAN MEDICAL ASSOCIATION, AT ITS MEETING IN ATLANTA, GA., MAY 1896.

COMPILED AND ARRANGED BY
HANAU W. LOEB, A. M., M. D.,*
ST. LOUIS, MO.

DR. G. V. WOOLEN, INDIANAPOLIS PRESIDENT.

Unusual Features in the Clinical History of Adenoid Disease.

By Price Brown, M. D., Toronto, Canada.

The writer confined his remarks almost entirely to the clinical history of a few unusual cases.

Case I.—Boy, age 7 years. Had for years been affiicted with right otitis med. cat. chron., accompanied by deafness on same side. No history of scarlet fever. All his life a mouth breather. Hearing on left side imperfect. Absence of right drum membrane, large papilloma attached to margin. Vault filled with adenoids. Faucial tonsils hypertrophied. The writer believed that the pressure of the pharyngeal tonsil upon the Eustachian tube had produced the ear disease. Under chloroform anesthesia, the papilloma, adenoids and tonsils were all removed. Hearing on left side became normal. No improvement on right side, though the nasal and throat symptoms disappeared.

Case II.—Woman, age 23 years. Had been gradually becoming deaf for two years. Could not hear a watch tick more than a half an inch from either ear. Impossible to open Eustachian tubes by Valsalva's method. Examination proved the presence of enormous pharyngeal tonsil, pressing palate forward, and producing complete nasal stenosis. Faucial tonsil not very large. The adenoids being soft and friable were removed digitally by three operations under cocaine anesthesia at intervals of one or two days. The day after the first operation, while the

*The compiler desires to express his obligation to Dr. M. R. Ward, of Pittsburgh for invaluable aid.

patient was blowing her nose, she felt something give way, and heard a sharp report in the left side of head, and could at once hear the conversation around her. The hearing was confined however to the left side, being produced by the sudden Valsalva-dilatation of the closed tube. The return of hearing on right side was more gradual; but in both ears was perfect by the end of two weeks.

Case III.—Man, age 20 years. Had been suffering for two years from buzzing in left ear, complaining particularly of effect of his own voice, which seemed to him to reach the ear through the throat on the affected side. Examination—vault of pharynx filled with large flattened tonsil, the left side being attached by a broad cicatricial band to posterior lip of Eustachian tube, binding it backwards, and seemingly keeping it permanently open. The adenoids were curetted out, and the attachment to the lip of Eustachian tube removed by fingernail. Result—Cure of throat voice sounds.

Case IV.—Child, age 5 years. Nasal stenosis from adenoids. Faucial tonsils not very large. Chloroform administered by assistant physician. Very little had been taken when respiration ceased. On forcing mouth open, tongue was found resting well backwards over the larynx. Drawing it forward with forceps removed the impediment to respiration. An operation to remove the adenoids was performed, followed by no trouble.

Case V.—Girl, age 9 years. Pale, flabby, anemic. Faucial and pharyngeal tonsils very large. Under chloroform double tonsillotomy was performed and pharyngeal tonsil removed digitally. The usual amount of bleeding followed, ceasing in a few minutes. Three hours later hemorrhage commenced again, being very profuse for a while. It abated before medical aid could be summoned, and further treatment became unnecessary. This was followed, however, by extensive ecchymosis of the palate which did not disappear for several weeks.

Case VI.—Girl, age 9 years. Had severe diphtheria several years ago, since which time she has suffered from irritable throat and nasal stenosis. The pharyngeal adenoids were very large, and the faucial tonsils irregularly hypertrophied. Chloroform was administered by an assistant physician, through an ordinary gauze inhaler. Not more than 30 or 40 m. could have been inhaled when patient stopped breathing. The tongue was drawn forwards by forceps, and Sylvester's method of producing artificial respiration applied. This had to be continued for fully 15 minutes before breathing was properly restored. On the slightest cessation breathing would stop and cyanosis be produced. Natural respiration having returned, the tonsils were operated upon freely with galvano-cautery, and the adenoids removed digitally. The child screamed loudly during the latter

but, on the return of consciousness, remembered nothing of what had occurred.

The writer concludes by a brief summary of his methods of treatment. The majority of his patients are from 4 to 12 years of age. These he always operated on digitally, and always under chloroform anaesthesia, administered by a qualified physician. One operation usually removes the adenoids entirely.

In older youths and adults he applies a 15 per cent. sol. cocaine on a pledget of cotton to the tonsil, and operates with Gottstein's curettes. His experience in the use of forceps for adenoid removal has not been satisfactory.

Discussion.

Dr. Norval H. Pierce, Chicago, Ill.: "The first point in the paper that impressed itself upon me was the unusual number of post-nasal hypertrophies in the adult. In my practice I have found that they are relatively rare. I do not mean slight hypertrophies or enlargements which fill up the upper portions of the vault, but those which extend so far down as to infringe upon the Eustachian tube. In my experience, I have witnessed only one case of this description. The case was that of a woman between twenty and thirty years of age, and the tonsil extended so far down as to really close up one Eustachian tube. In this case there was deafness on the corresponding side, and it was clearly due to stoppage of ventilation of the tympanic cavity.

Another point in which my experience differs from that of Dr. Brown, is, that in the adult nearly all the growths were of a fibrous nature. I have never seen a case of absolutely soft lymphoid tissue in the post-nasal space after ten years of age.

I wish we could speak more fully on the cause which the doctor states is unknown. There has been a great deal of work done in the last year in this connection. Eichorst and various French investigators have demonstrated that adenoid growths, when injected into the abdominal cavity of a guinea pig, will produce tuberculosis. It seems to me that we all could make experiments along this line. I am going to inject a certain number of these growths into the peritoneal cavity of the guinea pig and substantiate, if possible, the observations made.

In regard to the haemorrhages from these operations, I have operated on comparatively few of these cases in adult life, and in some of them the haemorrhages have been enormous. Fully five per cent. of my cases suffer from profuse haemorrhage after these operations.

I have seldom used systemic narcosis. I use cocaine.

Regarding the finger-nail—from my point of view, I should regard it as a very poor instrument in any operation. It is like eating with one's knife at the table—it can be used, of course, but it is not nice; and, too, the finger nail is a septic instrument. I do not believe that you can operate as well with the finger as

with instruments made for this purpose. I regard the Herring instrument as the typical instrument for the removal of adenoids. It has a cutting edge extending along the superior and posterior borders. The adenoid is simply the remains of the lymphoid prevertebral tissue of the infant, and to remove it we must have something that will not only reach the vault, but the pharyngeal wall of the post-nasal space as far down as the velum palati.

As regards the third case, it is a very interesting one. It is undoubtedly a case where the Eustachian tube was unduly patulous from the tension of the bands of connective tissue; but the peculiar feature of the case was, that the deafness disappeared in a few days after the operation."

Dr. W. E. Casselberry, Chicago, Ill.: "As the chairman has stated, the last word has not been said upon this subject. It is still important that we impress upon members of the profession, and they upon the public, if need be, that there is such a thing as adenoid vegetations. They often remain unrecognized notwithstanding the well marked chain of symptoms produced.

In connection with the symptom of deafness, there is still a field for investigation of the more precise methods whereby adenoid vegetations produce deafness. They sometimes make pressure upon the Eustachian orifice, thus closing it wholly or partially. While I have seen this in adults, I have seen it more commonly in children from eight to fifteen years of age. But I have been struck by the degree of deafness which can be produced by the presence of a moderate development of adenoids, insufficient in amount to press directly on the Eustachian orifice or to force the upper lip downward, as well as by the marked improvement in the hearing which takes place when the adenoids are removed in these moderate cases. Extension of inflammation by continuity of surface through the Eustachian tube is an explanation which is rather vague.

I was somewhat surprised at the reliance that was placed upon the finger nail. It is my opinion that when an operation is necessary they should be well removed. In those who show a distinct tendency toward the growth of adenoids, if removed partly, recurrence is liable to take place. I do not think that in this class the finger nail is sufficient. I have not been able to scrape them off with the finger nail. All I can do is to mash them, but is does not remove them. I grant that after healing there is a smaller mass but they are not entirely removed. I think that as long as we give an anaesthetic we might as well make a reasonably thorough operation and save the patient from recurrence and the physician his reputation. Not that I do not use the finger nail at all, for I do, but I do not place reliance upon the finger nail, to make the entire operation. I use it to scrape out remnants after the bulk has been removed.

I have two methods of operating, with and without a general anaesthetic. When it is necessary to remove both tonsils and

adenoids I always recommend an anaesthetic, but I do not always give it in an extensive dispensary practice where one has not the time, but I would advise it in private practice. I use the so-called A. C. E. mixture for the initial stage of the anaesthetic, then pure ether for the balance of the time. I do not operate until the patient is thoroughly anaesthetized. Then comes the choice of positions. Usually it is done in the Rose position, or in the sitting position in the lap of the attendant. I have used both positions and prefer the sitting position. I use what is called the intubation position with the head resting on the left shoulder of the nurse. In this position you have the correct relation of the parts. The first thing is to remove the tonsils. This I do when under ether with the cold wire snare and it can be done quickly and this prevents hemorrhage. Then the adenoids are removed by small cutting forceps which are guided by the finger. I remove everything that I can feel with my finger, using the finger as the guide. Finally, I scrape. I have never had a hemorrhage when operating in this manner. I have confidence in this operation and have no trouble. Without an anaesthetic the procedure is different. I then remove the adenoids with Gottstein's knife, but I have not confidence in this for the entire removal of everything. Parts of the mass are liable to escape this curette.

I have had only one case of hemorrhage following an adenoid operation, and this with an adult following the removal of a single fragment by forceps.

The question as to whether the adenoid tissue is of tubercular origin is a very interesting one indeed. The fact that tubercle bacilli are sometimes found in it does not prove that it is of tubercular origin. I doubt it very much."

Dr. Thorner, Cincinnati, O.: "The record of a few cases where deafness did not improve after an operation is proof that adenoid tissue is not always the cause of obstruction of the Eustachian tube.

I first observed the operating with the finger nail in England and it was sufficient to confirm my view that it is not the thing to be used. It is impossible to remove everything with the finger nail, and it is to my mind only to be employed to crush such remnants at the end of the operation, which may have escaped the instrument. I use as instrument forceps which cut either with the anterior or posterior edge alone, after the pattern of Edward Woakes. In addition I use curettes of different patterns. You cannot rely upon the curette alone, as it makes a shaving motion, and you can see that an instrument with this motion cannot be used to the best advantage on the posterior and superior walls, as these two walls form an angle, which in certain cases is never emptied by the curette.

As to the anaesthetic, I prefer chloroform. We know that on

the continent of Europe they do not now use anaesthetics scarcely at all. I was surprised last year to find that they had almost abandoned them. They are of the opinion that it is too dangerous remedy for the operation. I think this is the reason that the percentage of recurrence of growth after operation is larger on the continent of Europe than elsewhere. I have been operating in private, in hospital and dispensary practice for over eleven years, and have had a goodly number under by observation. Of course, I have not been able always to follow up the cases, but I would estimate that I have recurrence in about 8 to 10 per cent. Whether this is correct I do not know, as it is simply an estimate. I use chloroform, and have used the ether at one time, and for a while I used the A. C. E. mixtures. We all know that it is not as easy to use the ether with children as the chloroform. In the many cases in which I have used it I have not had any real unfortunate accident, with one exception, which I will presently relate. I usually operate with the head hanging down from the table. Of course there is much more haemorrhage, and it is an inconvenient position, as it is upside down; but on the other hand, it is much safer. The upright position is certainly the more comfortable. I tried it for a while having the patient sit upright on the table, held by a nurse, while I sat upon a low stool. The last time I tried it, the patient had a threatening collapse, before I had commenced with the operation. Since then I have discontinued the upright position. Of course, I might have gone on using it without any further trouble, but this was one case that I did not like, and I have not used it since. I have also used Bromide of Ethyl for a short time, but I find it very unreliable, and resort to it very rarely.

In regard to tuberculosis: We find that the general physicians are agitated on the subject of adenoid vegetations. I was very much interested by a paper which was published by Dr. Fink, of Hamburg, in which he said that lymphatism is not always a cause of the adenoids; but that the enlarged adenoid tissue is a good source for absorption, and that from here septic and other material is carried to the regionary lymph glands, so that the enlarged glands in such patients are rather the result than the cause of the post-nasal trouble. This is a standpoint which is somewhat new; but it is certainly worth investigation, as in many cases enlarged lymphatics at the neck decrease in size after removal of adenoid vegetation.

Dr. Cline, Indianapolis, Ind.: "The paper that has just been read seems to indicate that about all that is necessary has been said upon this subject, but I do not believe there is a subject in the domain of our work that is of more importance than the one under consideration. I believe that in discussing this sub-

ject and pointing out its great importance to the profession generally we will accomplish more and be of greater service to humanity than many operators who are cutting into the abdomen.

My observation leads me to believe, and I think most of you will support my view, that there are more distress and suffering, both directly and remotely, from obstructed breathing than from any other cause, as all sorts of ear troubles, pharyngitis, laryngitis, bronchitis and consumption are the direct or remote results.

If we have an obstructed breathing we are going to have trouble unless we can remove the obstruction and keep the passages open. The great majority of our older practitioners over the country do not fully appreciate the importance of a free breath-way. I have found some who would object to operating on children claiming that they would soon out-grow the difficulty. We often find objections on the part of patients themselves, and when we have to encounter the objections of practitioners also it makes matters worse. The trouble is that the older members of the profession have received little or no instruction on these points. Recently an old army surgeon who is well-informed generally, asked me what was meant by adenoids. In my practice I often find associated with adenoids enlarged, hyperaemic or stuffy turbinate bodies which require reducing with proper treatment.

As to operating: When we compare our own methods with those of others we will often find that they differ in details. I do not use chloroform or any other anaesthetic except in special cases where a child is very nervous or obstreperous and cannot be operated upon without it. My rule has been to operate with forceps and remove a small portion at a time. I have several kinds of forceps, but the ones I use mostly are the bullet-mould and one that I had made with a long curve with cutting edge around the curve. As a rule, patients permit me to remove a small portion at a time by first applying a little cocaine on cotton. By this method I certainly feel less anxiety about hemorrhage. I have had alarming hemorrhage in but one case—that of a boy twelve years old. After perhaps a dozen sittings I completed the work by removing a portion the size of a small pea. Two hours after leaving my office and while playing in the street, contrary to directions, hemorrhage began and continued for three hours, when I was summoned. I found the boy nearly dead from loss of blood.

I do not advocate the free use of cocaine, especially with the spray. I saw a fine, healthy looking boy, five years of age, die from the use of cocaine by spraying four per cent., in the Mackenzie Throat Hospital in London, which, I must say, somewhat prejudiced me against its free use. When I use it I apply it to the tumor on a small bit of cotton.

I do not like to operate with the finger nail for the reason that it seems uncleanly and I never feel satisfied that the work is well done."

Dr. H. W. Loeb, St. Louis, Mo.: "I was not surprised to hear Dr. Pierce say that adenoids among adults were becoming less in Chicago, for I suppose it is for the same reason that appendicitis is so uncommon in that city; they have been operated upon so often that there are none left. At least, I have found it more common than Dr. Pierce's remarks lead one to believe. As a rule, these adenoids in adults are fibrous and generally of small size, but once in a while I see a case where the adenoid growth is considerable. I have one family which I call my lymphoid family, as they are so affected, and a number of them being adults I have had an opportunity of studying them.

In operating on adults I use the forceps, and I do as much as I can with the mirror and by use of my finger in the pharynx. I use only cocaine, as I think that is sufficient for an adult or a good large boy, say over twelve years of age. My practice for children is almost invariably to use chloroform, as there is about as little danger in its use as ether. Of course, in adults, it is a different proposition, but in children it is about as safe, since the chloroform takes so little time. I have not seen a single bad case. My experience, of course, is considerably limited in this connection, but as long as I have not had bad results I shall continue this way. To one child, however, who had an enlarged heart and projecting sternum, I decided to give laughing gas, and I assure you that it frightened me more than chloroform could have done, but I succeeded in removing the adenoids.

I use Gottstein's curette, and after getting off all that I can in this way I use, not my finger nail, but the palmar surface of my index finger, and in this way I think I succeed in getting the greater part of the growth. I have also had recurrences, but I had more at first than I do now, which I suppose is due to my being now more experienced in operating. With the plan I now use I have had better success, and I now tell my patients that recurrence results about once in fifteen cases.

In regard to deafness. In two cases where deafness occurred the hearing was almost miraculously repaired in thirty-six hours, and in another case it was restored a little later.

Where the tonsils are to be removed at the same time as the adenoids I use the electro-cautery snare; this is better than the cold snare, as the hemorrhage is not so great. That tonsillotomy is not always followed by improvement in breathing is due mostly, I think, to the surgeons, for when called upon to remove the tonsils they do not appreciate the importance of attending to the relief from the adenoid growth.

With reference to the position under chloroform, I simply use the recumbent position. When I operate I have the operation over with before the hemorrhage can get down into the larynx.

I should like to have expressions of opinion in regard to having the operation over in, say one-fourth or one-fifth of a minute, and thus have no trouble with the hemorrhage. Can all the disease be removed in this time?"

Dr. J. E. Logan, Kansas City, Mo.: "I want to say, I concur with the gentleman who opened the discussion. The present difficulties would be obviated if the general practitioners and the surgeons knew more of these conditions and the importance of their removal. I believe they operate very readily in Chicago, but I do not think that they remove enough of them yet. There is a question in my mind as to whether we remove sufficient of the growth when we operate. I am inclined to believe that the middle ear troubles that come in middle life are due to what is left there from childhood. As to the cause of the adenoids, as referred to by Dr. Pierce, I have given this considerable attention and I am still as much at sea as I have ever been. We have seen cases of children with glandular enlargements throughout the system and no vegetations, and I have seen cases of adenoids without any systemic glandular enlargements.

The question of removal has been very thoroughly gone over and I am very much inclined to agree with Dr. Casselberry. I have followed this course myself. In the child I am free to say that I have long since relied upon my "septic" finger nail, but I endeavor to render it as nearly as possible aseptic. I was first influenced in this by Dr. Pritchard, of London, who removes them in children successfully in this way, and I have adopted this method almost entirely. I think it is the best way if you are careful to remove whatever fragments and material have been crushed. When I use the forceps or curette I insert my finger afterwards and remove whatever remains, and am careful, especially, to remove with the finger nail whatever surrounds the Eustachian tube. I think I can do this better with the finger than anything else without injury to the orifice. I have tried the cold snare, but not with much success, and also found it very slow. I agree with the gentleman from St. Louis in the quick operation. I use the recumbent position, allowing the head to fall back, and with the forceps or with my finger nail I can remove these growths so quickly that very little blood will enter the pharynx. If I have not finished the operation and the hemorrhage is interfering, I turn the patient over and continue the removal. I have not feared the hemorrhage, as I have not had any trouble in this respect. In the last six weeks I have removed two very large adenoids in adults; one had fibroid tissue throughout the growth, and the other was very pliable and easily removed

As for the anaesthetic, I am very free to say that I have had very little success without its use. I put the child under chloro-

form in almost every instance. I dislike the odor of ether myself and am so easily affected by it that I do not like the use of it. I have not had any serious trouble, except in one case where I had suspended respiration for a short time. Have at one time used the nitrous oxide gas and was as much horrified as Dr. Loeb. I am in favor of an anaesthetic. If we are going to do this operation we should do it well. If we prevent recurrence it must be by complete removal.

Dr. B. A. Randall, Philadelphia, Pa.: "My attention was early called to the not infrequent and sometimes very serious middle ear complications. The middle ear suppurations are very uncomfortable outcomes and their effects in mastoid disease, etc., may last for many weeks. I have always felt that this was not as infrequent or slight a matter as it has often been claimed, nor that the benefits of operating on adenoids whenever found were well proven. The middle ground I believe is the safe one; and if I speak from the stand-point of one too conservative in the matter, it is because the other side has been too much exploited at times. There is a considerable physiological prominence and a stage beyond which is merely congestive or erectile that may be helped more truly by the use of medicine rather than by an operation.

In regard to the use of the finger: I have had satisfaction in the employment of the palmar surface of the finger in the soft vault of young patients rather than by the nail which I generally prefer to the use of the forceps. I have made use of this again and again without any hemorrhage, while I may bring away as much as a teaspoonful of the pulpy contents of the growth. I also have the instruments ready at these operations, especially where I use an anaesthetic. As to the ultimate results of operations, I am confident that if all were followed up carefully the recurrences would be found to be greater than is generally believed. I am positive that many men, who pride themselves upon the clean completeness of their operations have had recurrences where they did not suspect them.

I have in mind a case which was thought to be a cured case where there is to-day one-third of the growth. I have seen too frequently in adults recurrences of these growths, and I constantly see growths which it is impossible to remove entire without injury to the surrounding tissues."

Dr. Robert C. Myles, of New York, N. Y.: "I regret that I did not hear the paper. I think that there are more errors committed in over than in under-operating. In certain sections, especially in Europe, they remove the post-nasal tissues so thoroughly that in my opinion, nasal tissues are extirpated that should remain there, and this is probably due to the surgeons jealousy in regard to his reputation in anticipating the possibility of another operation.

I do not consider the forceps safe in the hands of a general practitioner; unless he is well trained in specialism, he is liable to remove a part of the Eustachian tube, part of the septum, or part of the wall of the rhino-pharynx, mistaking it for the adenoid tissue. I believe that a properly constructed and sharpened curette is the safest and most effective instrument in the hands of the general practitioner. With a curette of the proper size, nearly all of the central growth will come out as one mass and intact. Afterwards it is well to remove the remaining adenoid tissue, which may be in excess of the normal, with the finger. The remarks above refer to the operation when done with cocaine and without ether. My experience with hemorrhage, is that it is not so great after removing the large central growth, but follows the extirpation of the mucosa and adenoids on the sides of the rhino-pharyngeal wall. When the patient is under ether, I endorse the use of the forceps when they are carefully guided by the index finger of the opposite hand."

Dr. A. G. Hobbs, Atlanta, Ga.: Mr. Chairman, if you will consent, and the gentlemen will bear with me now, I would like to close the discussion on the adenoid paper I read yesterday and which was so ably discussed by a half dozen or more of you. I believe all of you were of the opinion that it is best to remove the entire growth. I believe exactly the contrary and every case I treat only confirms this belief which I expressed more than twelve years ago. In children where the absorbents are active, to simply break up the mass is all that is necessary. I have seen a number of scars over the Eutachian tubes as a result of unnecessary attempts to "get it all out."

It is impossible with an instrument capable of removing the entire mass not to wound some of the normal tissues in the effort to scrape out and punch out every vestage of adenoid and particularly when this end can never be reached it is, in my mind, bad policy to persist.

Dr. Randall's case was no doubt caused by syphilitic scars. I recall some cases of such persistent and peculiar tinnitus that I could attribute it to nothing else although the history was absent and other evidences of syphilis very scant. To repeat, I have never found it necessary to remove the whole mass of an adenoid growth in the post-nasal space.

Extra-Dural Abscess from Mastoid Empyema.

By B. Alexander Randall, M. D., Philadelphia.

Dr. Randall illustrated with steriopticon pictures the topographical anatomy of the tympanum in its relations to the intra-cranial structures, and pointed to the improved understanding of these topics, and the greater frequency with which the pathological processes in the temporal bone were being followed in their deepest extensions. Extra-dural abscess was thus found

to be quite a frequent lesion, too often overlooked in the past, and while not in itself very serious, it was the cause of many of the intra-cranial extensions, such as sinus thrombosis, abscess of cerebrum or cerebellum and purulent meningitis, of which the results are most serious if not fatal. More general and better knowledge of the normal and pathological anatomy is still needful; and as the aural surgeon is generally the best posted man, he is not usually doing his full duty if he does perfect himself in the technic of intra-cranial operation, in which most of our general surgeons are almost as little experienced.

Case of Primary Inflammation of the Mastoid.

By Dunbar Roy, Atlanta, Ga.

Cases of this kind according to Politzer are very rare. He divides such primary inflammation into (1) that arising from the periosteum; (2) that arising in the bone substance proper. Other authors do not hold to a like division because of the impossibility of telling whether the periosteum or bone substance proper is primarily affected.

Case seen by me was a child ten months old brought to my clinic at Southern Medical College on account of a swelling behind the right ear.

From the mother the following history was obtained.

Father and mother healthy. Other children all healthy. Child was constantly putting its hand to its ear, as if in pain. Never had been any discharge from the ear. The swelling had been present for a week.

Examination.—A fluctuating swelling behind the right ear. No signs of a present or past discharge from the ear. Drum membrane normal in appearance. No fever. Some glandular enlargement. Treatment consisted in a free incision and evacuation of abscess, curetting the bony debris and packing with iodoform gauze and a bandage secured around the head. In ten days perfect hearing resulted. Six months later the mother returned with the child showing an analogous condition behind the left ear. The treatment was the same, with the same excellent results.

The causes of primary inflammation of the mastoid are cold, rheumatism, syphilis, tuberculosis. By primary is meant an inflammation in the mastoid entirely independent of any previous inflammation in the middle ear. Blake believes that in nearly every such case reported if the history could be definitely known, a previous inflammation of the tympanum would be discovered.

My own ideas are that every true primary abscess of the mastoid is nothing more than an ostitis dependent upon either syphilis or tuberculosis, just as in other bones of the body.

Such cases have been reported by Blake, Politzer, S. C. Ayres, Swan Burnett, Wurdemann and others.

The Operation of Mastoid Antrotomy for the Cure of Obstinate O. M. P. C., With Description and Presentation of the Author's Antrotome.

H. A. Alderton, M. D., of Brooklyn.

What shall we do in cases of prolonged suppuration, where ossiculectomy does not bring about a cure, or where nature has removed the ossicles and still, after curetting the tympanic cavity and the mouth of the aditus and faithful treatment by syringing, etc., the discharge keeps up, with or without periodical exacerbations? Shall we perform the classical mastoid operation, subjecting our patient to the danger of cerebral concussion, of post-operative facial paralysis, or of accidental opening of the lateral sinus? Far be it from the writer to deprecate the running of all these chances where it may be necessary to extend the field of operative interference to the brain or its adnexa, where the mastoid operation is but the preliminary step to more radical measures. But where this is not contemplated, especially when all that is undertaken is the cure of the persistent suppuration, then the writer suggests that the instrument here presented may serve a useful purpose.

This instrument consists of a canula, to whose proximal end is affixed at an obtuse angle a handle and whose distal free end is given such a curve that the mouth will, when this end of the canula is introduced behind the annulus tympanicus, be directed toward the tympanic mouth of the aditus ad antrum. Through this canula passes a probe-pointed stylet whose proximal end is manœuvered by a lever with fulcrum in the handle, the movement of the lever being regulated by a ratchet springing from the handle; this lever when pressed against the handle projects the watch-spring probe-pointed distal end of the stylet from the distal mouth of the canula through the aditus into the antrum. The distal end of the stylet is tempered in such fashion that it always continues the curve of the distal end of the canula.

To the proximal third of the canula, just beyond the handle,

is a fixed block, in which is a bore running parallel to that of the canula, within this bore on its proximal side is adjusted a rod fixable by a screw; this rod has at its proximal and a half inch from its distal end, two similar eyes, attached above on its upper surface, through which passes another rod whose distal end forms a trephine and whose proximal end has the form of a handle with a shoulder which permits the advancement of the trephine only up to within $\frac{1}{8}$ of an inch of the watch-spring distal end of the stylet, when protruded.

The trephine rod must always, therefore, remain parallel to its carrying rod and the canula, and the trephine can never extend further than to within $\frac{1}{8}$ of an inch of the distal watch-spring curve of the stylet.

The method of operating is as follows: The ossicles having been thrown off by nature or removed artificially and curettage of the tympanic cavity having been performed without resulting in the cure of the suppuration, the patient is anaesthetized. The external osseous wall of the attic is removed by means of Dench's bone punch and Hartmann's chisel forceps until a probe can be easily introduced into the aditus, all strands of fibrous tissue still remaining being curetted as far as may be into the mouth of the aditus. If cocaine be used the hemorrage is not obstructive in most cases.

Then a curved incision $2\frac{1}{2}''$ long is made $\frac{1}{4}$ of an inch behind and parallel at all points to the auricle and the bone exposed down to the beginning of the osseous canal by separating and reflecting forward the periosteum. The external auditory canal is now either packed with gauze or a tent is passed in sufficiently far and the whole posterior wall of the cartilaginous canal is cut through at a level with the edge of the osseous canal. The gauze or tent is now removed and the posterior wall of the canal approximated to the anterior, thus allowing the introduction of an aural speculum through the incision.

The carrying rod of the trephine rod is now disconnected from the block on the canula and using the handle of the trephine as ordinarily, the trephine is bored into the outer table of the mastoid for a quarter of an inch or so, at a point $\frac{1}{8}$ to 1-6 of an inch posterior to the middle of the posterior wall of the canal. This is in order that the trephine may bite when introduced afterwards. The trephine is now withdrawn and the canula introduced through the incision in the posterior wall of the canal, either with or without the use of a speculum, into the tympanic cavity and the mouth turned towards the aditus the stylet pushed through the aditus into the antrum by the lever and the lever caught on the ratchet.

The handle of the canula must now be held lightly by an assistant and the carrying rod of the trephine adjusted to the block on the canula. The operator then takes the handle of the

trephine and again introducing the trephine into the superficial hole previously made in the outer table of the mastoid, proceeds to bore into the bone until the shoulder stops further progress, the handle of the canula being all the time held very delicately by an assistant, so as to produce no traction. The instrument is then withdrawn and the antrum is found to have been perforated.

The wound is now washed thoroughly through the artificial passage to the antrum and externally; the external auditory canal is packed with gauze introduced through the natural orifice, thus bringing the posterior cartilaginous wall again into its normal position; the mastoid incision is sutured superiorly and inferiorly but left open in the middle and a drainage tube of silver introduced through the trephined opening to the antrum. The silver drainage tube has a shoulder which prevents it from disappearing into the bone, and the tube is sufficiently long to reach the antrum when the soft parts are in position. Gauze dressing is applied over the wound as in the ordinary operation.

Cleansing and healing solutions can now be introduced directly into the antrum, as frequently as may be desired. The trephined hole is kept from filling with granulations by frequent removal of the tube, curetting and re-introduction.

I have to thank Messrs. Stohlmann, Pfarre & Co., of 28th St., New York, for perfecting the instrument and furnishing cuts.

Discussion.

Dr. Max Thorner, Cincinnati: "The papers are of more than usual interest, because the question of operative interference and the questions on topographical relations are comparatively new. We very well know that ordinarily topography of the temporal bone is insufficiently treated in text books to give a clear idea of the condition met with in the troubles of the mastoid and temporal bones. For this reason I think that we should consider all anatomical demonstrations with interest. These points were brought out so well by Dr. Randall.

In one of the views, we saw the antrum was so small that you could not tell whether it was the antrum or the mastoid cells. The antrum is ordinarily larger, and the floor of it is so much below the level of the aditus that pus cannot flow out according to the laws of gravitation. Thus is happens that in cases where the inflammation is violent, before we think it possible, we have the whole mastoid process converted into one pus cavity. It has often been said that the ordinary acute otitis media will, if attended to at once, never lead to serious complications. This is however not my experience. Sometimes serious complications will ensue in spite of all that we do.

Dural abscesses, the essayist stated, may exist some tim-

without distinct symptoms. I had seven weeks ago a case of acute otitis media following influenza, which was very serious from the start. The temperature was never lower than 102 and the discharge was profuse for week after week. At the same time, severe pain developed over the temporal bone. All the symptoms of a mastoiditis were present when, after six weeks treatment I went into the temporal bone. It was one large cavity filled with pus and granulations. When cleansed thoroughly I found that a small amount of pus had collected below the posterior and anterior wall of the enormously large antrum and the dura mater. About five or six drops of pus escaped from this location, after enlarging the pin hole opening, which existed in the bone. The patient made an excellent recovery. I believe that in a case where we have mastoiditis which is not primary, we cannot cure it by simply making an incision through the integument, but only by entering into the pus cavity and by removing the pus. But in cases of primary or secondary periostitis of the mastoid process, without any accumulation of pus, I do not see why Wilde's incision alone should not suffice. Ample experience shows that for cases of this kind Wilde's incision is indicated.

In regard to that part of the paper which we heard read, referring to cerebral abscesses, as one of the possible complications, I would like to simply report one case, which I had only a few months ago under my observation. It is interesting on account of the enormous size of the cerebral abscess. The patient was in a comatose condition when received at the Cincinnati City Hospital, and had been for three weeks. The history was meagre, but it was found upon examination that the suppuration had been present for some time previuosly. It was stated by relatives that at one time a little piece of bone had been discharged into the auditory canal. There was a profuse purulent discharge from the right ear which was exceedingly offensive, and caries of the attic could be determined. The question was what was to be done. It was thought there might be a localized abscess. It was decided to operate according to Koerner's rule; that is, follow up the pus. Upon opening the antrum, I found it filled with pus, and granulations; a very small perforation was found, through which a few drops of pus escaped. This opening was gradually enlarged, when an enormous amount of pus, very offensive and of a green color came out in a stream. The abscess cavity was so large, that the walls of it could not be felt. After establishing thorough drainage the wound was closed. The patient came out of the comatose condition, but died in thirty-six hours after the operation. It was the largest abscess that any one connected with the hospital had ever seen, being about the size of a small orange and occupying the right

temporo-sphenoidal lobe. The brain tissue within one-fourth and one-half of the walls of the abscess cavity was softened and discolored.

Dr. Myles: "The character of the paper which Dr. Randall has presented is quite unique and extremely practical. He has probably given us more information in a short time than could have been given in any other way. I have been demonstrator of anatomy of the ear for several years, and the paper was particularly interesting to me. He has presented so much of the essence of truth by these photographs, that it is almost impossible to digest it all. My experience has taught me that nothing but frequent demonstration of these practical anatomical points will fix them permanently in the mind. The topography of the antrum and mastoid varies in different cases, and in different ages. The Doctor has presented some remarkable specimens, but I would have presented them in a little different way. I leave all of the external landmarks on the specimens, that will not be detrimental to the specimens, as I find that in this way the mind is better enabled to grasp the situation. A complete analysis of the relation of every structure is essential in the proper comprehension, and in the teaching of this department. It is well to instruct the student so that he can operate safely, and without penetrating the lateral sinus under any topographical condition. One good rule in operating is to cut carefully and deliberately, and to start by chiseling a broad bevelled opening rather than a round narrow hole. If he clings closely to the auditory canal, and cuts in a spiral direction upwards, inwards and forwards, he will reach the antrum quickly and surely. If you wish to be a little more direct, you may start a little higher in the supra-meatal triangle, and chisel directly inwards. The chief thing to avoid is injury to the facial nerve, which usually comes outward near the junction of the floor of the antrum and the posterior superior walls of the tympanic cavity.

In regard to children and to the paper of Dr. Roy, a great many cases of swelling posterior to the ear, and over the antrum or mastoid can be cured by a Wilde's incision. In that class of cases where there is no pus discharge in the canal, it is usually due to periostitis or caries either of traumatic or tubercular origin or extends through a small venous aperture from the antrum, and in certain cases, the pus burroughs from the attic along the external auditory canal, and causes local abscess on the roughened area of the mastoid process. A great many of these cases get well after simply incising and draining, without curettage or interference with the middle ear."

Dr. Cline: "I have seen some remarkable cases of mastoid disease, and I have been fully persuaded that too many extensive operations are performed on these cases. I was called

to see a man seventy years old, who had had a discharge of pus from his ear for ten weeks. He had been sitting up in his chair for eight days and nights and could not lie down on account of pain. On making Wilde's incision the knife passed right into the bone, which seemed soft and pulpy. Pain subsided immediately, and he was able to lie down. A draining tent was introduced and the second day there was a free discharge of pus. I put him on the iodide of potassium and he made a rapid recovery without any scraping or chiseling away of the bone.

In another case with whose history I was familiar, the ear had been discharging for fourteen weeks. Came to consult me just as I was leaving for my vacation. The ear was very painful and over the mastoid the tissue was very much swollen and of a very dark purple color. His condition was such that, with his previous history, I decided that an operation was indispensable. I directed him to return home and lie down and send for a competent surgeon in his town and have the operation performed at once. The doctor who took charge of him decided to wait a day or two before operating. He at once put him on ten-grain doses of iodide of potassium every two hours. The patient began to improve immediately, and in three days the pain had disappeared and in seven days the discharge from the ear ceased, and since then, two years, he has had no further trouble.

I might detail other cases but these two will suffice for the plea for conservative, early, extensive operating, and the free use of the iodides in these cases.

Dr. Frank Allport, of Minneapolis, Minn., said: "I must take issue with what has been said concerning the unnecessary frequency of such operations. My own tendencies are always somewhat conservative, especially where serious operative procedures are contemplated, but in this line of cases, I emphatically believe we do not operate enough. The history of the mastoid operation, and now the history of operations for otitic brain abscess, leads us through the uncertain maze of the past, when such procedures were regarded with mingled feelings of awe and aversion, to the triumphant place now universally accorded them in the modern annals of surgery, and I predict for them, and especially the latter, a much higher and more exalted position than that at present possessed, and I therefore beg leave to repeat that in the light of the development of past history, we do not operate enough, and the time will come when the human brain will no longer remain a terra incognita, but will be successfully explored by the progressive modern surgeon.

No man should venture upon such surgery unless thoroughly prepared therefor by accurate anatomical, topographical and

pathological studies, both theoretical and practical; but when thus fortified, and then brought face to face with a case of this character, he should not hesitate, but boldly venture forth. In a correctly recognized case of brain abscess, there is no other course to pursue and the patient may as well die from an unsuccessful operation as from a timorous and too conservative therapeusis. It is astonishing how much interference the brain will endure, as is instanced by a case I will briefly recite: The patient was a man injured in a trolley car accident, producing a basal fracture and bleeding from the ears, followed by some discharge. Cerebral symptoms ensued, and I was called to diagnosticate a mastoid abscess, which I could not do. The consulting physicians and myself thereupon diagnosticated a probable brain abscess, and the patient was accordingly trephined. Thorough exploration was made in many directions, starting from the temporo-spheroidal lobe, but no pus was found. The wound was closed and death speedily expected, but, on the contrary, the patient quickly, permanently and completely recovered, whether from relief of pressure or not, we do not know. So, death need not always be expected, even when an operation is made and no pus found. I do not repeat this instance to encourage reckless operating, but to endeavor, in a small way, to somewhat dissipate the reluctant attitude assumed by surgeons when cerebral operations are mentioned.

It is not necessary for a man to be an aurist to open the mastoid process. Any surgeon properly qualified, may undertake it, but it should be remembered that the operation has developed from a mere gimlet-hole opening or vent to a thorough removal of the outside mastoid shell and a conscientious following up of every pus avenue, no matter where it may lead. We never know, therefore, when we start in to open a mastoid process, what may be the ultimate issue involved, and we should be prepared to meet and care for any and all emergencies, and to treat pus deposits in this locality upon the same general principles observed in other portions of the body.

In regard to the method of operating, I prefer the dental engine, with fresh, sharp burs. It is gentler, quicker and smoother than the chisel, and the field of operation can be observed with great accuracy when it is used.

Concerning Wilde's incision, I believe it to be indicated but seldom, but when used, unless a pus deposit upon the outside of the mastoid is evident, the incision should be made in the inner, upper and posterior portion of the meatus, as the mastoid cells are here much more in evidence than at the hard, external mastoid plate. At best, however, the Wildes' incision is usually but a temporizing procedure, through which valuable time is lost; and still, I cannot say I have never seen benefit ensue through its agency."

Dr. T. H. Shastid, Galesburg, Ill.: "It is with the greatest diffidence that I speak of a subject like mastoid troubles before those who have had so much greater experience on that subject than I; but I should like to say a few words with regard to the question of when to operate. I am inclined to believe that Politzer's ideas on this point are about correct. He says that in the chronic mastoid troubles the thorough operation should be done. The antrum should be opened, and, if then found necessary, the tympanum also, In acute cases, however, the thorough operation is seldom necessary. The abscess usually lies in the vertical portion of the process, and does not, as a rule, communicate with the antrum. If, in such cases, we go down to the antrum, we shall infect those parts when there is no necessity for it. In those cases where the pus bursts through the cortex spontaneously, there is very little to be done. We can easily remove whatever comes away, and that is about all there is to be done, for then they get well of themselves. It is seldom necessary in such cases to make a thorough operation on the ground of preventing chronic fistulous discharge. I have frequently seen such cases, and they almost invariably do well in the course of two or three weeks at the longest.

Dr. Roy's case reminds me of one of my own, that of a lad about seventeen or eighteen years of age, in which there was no suppuration from the ear, and which presented neither a sign nor a history of former suppuration. At the operation I found very little pus, but some carious bone. I had the case down as primary mastoiditis. But afterwards I was somewhat surprised to receive from his parents a history decidedly different from what they had first given me. He had had, now that they recalled the fact a slight discharge of short duration some years before, No doubt in all these cases there has been previous tmypanic trouble, of which the membranic signs had been effaced and the history forgotten."

Dr. Edward J. Berstein, Baltimore, Md.: "I did not hear Dr. Roy's paper, but I have had some little experience in this direction.

I do not believe that the relative impunity with which one can enter the brain constitutes any warrant for the frequency with which some undertake these operations. I have operated a number of times with a good percentage of successes; on the other hand I have had cases of late where everything indicated the necessity for operation, and I pled with the patients for the necessary permission, but owing to their persistent refusal, I was forced to keep to less radical means. Many of these latter patients recovered, and are apparently well. Of course they are not safe from recurrences, as are those who submit to the radical procedure, but an immunity from attack for one

or two years speaks well for this side of the question. I have never used Wilde's incision, because Leiter's coil, mercurial ointment, and other local applications have always served me where the regular mastoid operation was not indicated."

Dr. B. Alexander Randall, Philadelphia, Pa.: "I wish merely to refer to the point already made that these mastoid and tympanic cases are the hot-bed of tuberculosis. Cases that are not primarily tubercular are here transformed, and we have the tubercular infection passed into the whole body.

While I do not believe in Wilde's incision, I think the whole matter can be set down as largely one of technique; and the way in which we go at it will depend upon our instruments. I brought down with me a little operating case, which contains about all the things we want for both the mastoid, the intracranial and the delicate tympanic operations, and will make the operation safer. You will see that this case is small and easily handled, and yet is complete in its contents and constitutes a sterilizing apparatus. The dental engine cannot be carried about and is not so easily handled, and it requires much foot practice to maintain steady motion."

Portable Compressed Air Apparatus.

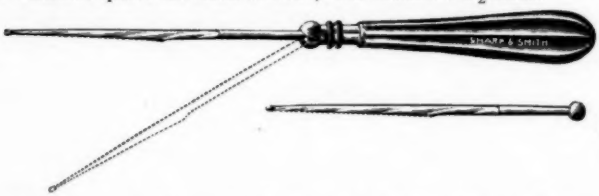
Dr. E. Fletcher Ingals, Chicago, Ill., presented a portable compressed air apparatus, made for him by Sharp & Smith, of Chicago, with the following remarks: "This is a compressed air apparatus designed for treating patients where we are obliged to carry an apparatus with us as for instance in going to theatres to treat actors, or for the use of patients, who need a high air pressure for making applications to the larynx or Eustachian tubes.

It consists of a cylinder, eight inches in length, and three and a half ($3\frac{1}{2}$) inches in diameter, capable of standing eighty pounds pressure. The cylinder has a movable head that may be slid in so that the spray tube, pump and all other parts of the apparatus may be placed inside of the cylinder, when not in use. To use it, the head is drawn up against a rim with a rubber washer and quickly fastened by clamps that make it air-tight, The air tube is one and a half feet in length so that the patient can hold the cylinder in the lap while the application is being made. A bicycle pump is employed, which you see is of convenient size to go into the cylinder when packed, but is sufficient to enable one easily to obtain forty pounds' pressure. The cylinder filled with compressed air by this means holds sufficient to throw a strong spray the length of time necessary for treating five or six patients.

The price of this first apparatus, without a case, was fifteen dollars ($15), but as more are made, the manufacturers say they can be furnished in a leather case with space for a reflector,

throat mirrors and extra solutions, if desired, for fifteen dollars ($15.00). The case complete with the extra space for other instruments will measure only eight and one-half (8½) inches

in length, four (4) inches in width and five (5) inches in height, or without space for head mirror, will measure 8½x4x4."



Dr. Ingals also presented a nasal saw with an ajustable handle that could be set at any angle. The instrument was provided with two blades, one to cut forward, the other backward. The saw was manufactured by Sharp & Smith, of Chicago, and had proven very satisfactory. It was made altogether of metal, could be boiled and could be easily cleaned and dried.

Surgery of the Nasal Vestibule With Reference to Certain Forms of Stenosis and Facial Disfigurement.

By Robert C. Myles, M. D., New York.

He stated that the nasal vestibule extended from ½ to ⅞ of an inch within the nasal fossa, and that nearly all of it was cov-

ered with scaly or pavement epithelium in contrast to the lining of the balance of the nasal fossa, which was covered with ciliated and non-ciliated columnar epithelium. Attempts to enlarge the nasal vestibule by excision of the surface tissue usually results in the narrowing of it on account of the large element of fibrous tissue. He mentioned many cases which had come under his observation, where the patient had been made much worse because the surgeon had not recognized these principles. The worst type of case was that in which the electric trephine had been used. The method he had employed in relieving these vestibular adhesions was carried out by passing a small trephine along the floor through the bridge-like band, and then inserting a headed rubber tube through the opening; retaining same in position for some months, until the healing and absorption was complete. The operation was finished by excising the segment above the perforation with a Graefe knife, and then using a Behrens cork or Asch's perforated tube for a few weeks.

Another class of cases upon which he had operated successfully were those in which the anterior end of the triangular cartilage was displaced laterally, so as to almost occlude nasal respiration on that side. In these cases the nose is made as aseptic as possible, and the incision made about $\frac{1}{2}$ to $\frac{3}{4}$ of an inch downwards and about 2 millimeters posterior to the projecting end of the cartilage; the mucous membrane and perichondrium are carefully dissected on both sides from the cartilage, the upper anterior part of the cartilage being left to sustain the tip of the nose; a piece about 10 to 15 millimeters long, and 2 to 4 mm. broad is removed, four to six sutures are passed through the cut edges and tied. The vestibule is then packed with iodoform and bichloride gauze for a few days. In almost every instance union was secured by first intention. The use of cocaine hypodermically made the operation painless. The chief mishap to be guarded against was counter puncture of the membrane further back in the fossa, which may occur in attempting to separate the perichondrium and membrane from the cartilage. It is almost impossible to keep this part of the membrane in an aseptic state. He gave the histories of several patients suffering from this trouble, and presented photographs taken from life and from wet specimens.

Electrolysis for the Reduction of Spurs of the Nasal Septum.

By W. E. Casselberry, M. D., Chicago.

Electrolysis is a process of chemic disintegration of tissue under the influence of a galvanic electric current and is not to be confounded with galvano-cauterization. The current strength necessary is from 15 to 40 m.a. and 8 to 20 volts, which may be supplied by a 20-cell battery, but the author has adapted the

Edison electric light circuit to the purpose by means of lamp resistance and the McIntosh Current Controller. The duration should be from 6 to 8 minutes.

The chief difficulty in the reduction of cartilaginous spurs is to determine exactly when sufficient destruction has been effected, and care guided by experience is necessary to prevent perforation of the septum. A simple deviation or bending of the septum cannot be corrected or straightened by electrolysis and its use in such a case can only result in perforation. If in addition to the deviation there is also a spur, that is conjoined deviation and excrescence, the thickening may be reduced or removed by electrolysis but the deviation will remain.

The pain is trifling but the sensation tends to cause syncope.

The bi-polar method by which two needles, one representing each pole are inserted into the spur, is preferable. The author's needles devised for the purpose, are of irido-platinum, fixed to a convenient handle, but ordinary heavy steel sewing needles may be used.

Sixteen cases are reported classed in their types according to the composition and location of the spur and the degree of success attained, from which it is concluded: While effective in many instances its scope of application should be limited in accordance with the following principles:

1.—Strictly cartilaginous spurs can be thoroughly removed by electrolysis. One, two or even three operative sittings being required. It is more tedious and less brilliant than the surgical method, but is not accompanied by a liability to hemorrhage. It is not to be endorsed as a universal substitute for the surgical method in even this limited class; but it is a serviceable measure for exceptional individuals of both this type and type II. e. g.

a.—For cases of minor degree, small spurs of cartilage or of cartilage and bone, and thickened areas, which seem scarcely deserving of surgical treatment but which one would like to see resolved for the sake of the additional nasal space and better drainage which would thereby accrue to the patient.

b.—For patients of delicate physique and those of highly sensitive and uncontrollable nervous organization.

c.—For "bleeders."

d.—For those who decline surgical interference.

2.—As demonstrated by the cases reported under type II, it will not thoroughly remove spurs which belong to that large class of mixed cartilaginous and bony substance, but it will reduce them in size. The majority of such cases would therefore better be treated surgically as being the more thorough method; but instances will arise above indicated in which the surgical method being inexpedient benefit may accrue from the use of electrolysis.

3.—As demonstrated by the cases reported under type III, large spurs composed mostly of hard bone cannot be successfully treated by electrolysis for the reason that needles cannot be caused to penetrate properly and further it is doubtful if the process is adequate even if the needles should penetrate, to the resolution of hard and dense bone, en masse.

4.—Spur or excrescence, and not deviation of the septum, is the subject of this paper. Electrolysis is powerless to correct deviated septa of any form.

Discussion.

Discussion opened by Dr. John O. Roe, of Rochester, N. Y.: "I am sorry not to have heard Dr. Pierce's paper, as I should like to know what he has to say concerning certain points relating to malignant diseases of the larynx and laryngotomy.

I was much interested in Dr. Myles' excellent paper, and quite agree with him in what he has said. The point that he has made in regard to the ill advised attempts frequently made to enlarge the vestibule of the nose by cutting out the interior of the passage, is well taken. This procedure invariably results in decreasing the size of the opening instead of enlarging it, for the reason that when a portion of the constriction is cut away, the circumference of the interior of the uncut portion is correspondingly lessened, and when the cut edges become coapted during the process of healing, the lumen of the passage is made smaller.

The vestibule of the nose may become narrowed by a variety of causes. In those cases in which it is obstructed by an exostosis which we frequently find in the floor of the vestibule, this exostosis should be removed subcutaneously in order to leave the mucous membrane uninjured, thereby avoiding the contraction of the passage. This is but done by making an incision in front of the eminence down to the bone and raising the mucous membrane, together with the periosteum over the entire elevated portion of the exostosis. By cutting this through these tissues on the posterior side, they can be raised out of the way and the bony growth removed either by drill or saw. When this is completed, the mucous membrane of the periosteum can be replaced, leaving the passage of the nostril unobstructed.

The vestibule of the nose is also often so very much narrowed by the collapse or dropping inward of the ala of the nose from a weakening or partial paresis of the dilator naris muscles, thus allowing the ala to be drawn inward against the septum during inspiration, thus increasing the obstruction to the ingress of air. I have removed this difficulty by making one or two incisions as may be required, through the cartilage of the ala, and inserting a dressing into the nostril sufficiently large to

distend the ala quite widely until the cut made through the cartilage has become firmly healed, and fixed in this position, thereby maintaining the nostril freely open and preventing the collapse of the ala on inspiration.

I was also much interested in Dr. Casselberry's paper on the reduction of spurs of the nasal septum by electrolysis, although I have never employed that method. I have not done so for the simple reason that I have always disposed of spurs and ridges of the nasal septum by what seems to me to be a very much easier and simpler method—by simply cutting the spur away. If the spur is located on the cartilaginous portion, I employ a suitable small cartilage knife for its removal, and if located on the osseous portion of the septum I remove it with a saw or with the Curtis drill. I have not attempted the more complicated methods because my patients do not object to having these obstructions removed in this manner. In the case of removing a small enchondroma, it can be so easily and quickly done with the knife that if the parts are thoroughly anaesthetized with cocaine, the patient is neither alarmed nor incommoded by the operation, and sometimes scarcely realizes that anything unusual is taking place.

In regard to the danger of denuding the parts of mucous membrane, I have never experienced any difficulty in this respect after a cutting operation, if but a limited portion of the membrane is removed. Even in some cases where quite an extended area of mucous membrane is removed, I have observed it from day to day spread over the parts when maintained thoroughly aseptic, so that in a short time the site of the operation from the loss of the mucous membrane could not be perceived. After the use of the cautery, however, I have observed extensive scars and areas in which the mucous membrane had been replaced by fibrous tissue, thereby causing much annoyance from the dryness of the nose and the formation of scabs and crusts over the parts in which there were no mucous glands to lubricate the part."

Dr. W. E. Casselberry, Chicago, Ill.: "Concerning the transformation of benign into malignant growths, I followed closely the extended discussion of this subject including the collective investigation of Dr. Felix Semon, which succeeded the case of the late Crown Prince, and was then convinced that it practically does not occur. The cases then brought forward were comparatively so few in number and the liability to error in diagnosis between benign and malignant states early in a case of carcinoma of the larynx is so great, that the presumption in doubtful cases of transformation is in favor of the latter. The early stage of carcinoma of the larynx may closely simulate papilloma. This point of an early diagnosis is one upon which laryngologists should be well versed. In intrinsic carcinoma I have

placed much reliance upon an impairment of mobility (however slight) of the corresponding vocal cord. An epithelioma, involving customarily more the depths of the vocal cord, impairs the mobility while a simple papilloma being a surface growth, does not impair the mobility, although, of course, it does not produce hoarseness. Extrinsic carcinomata, for example, those which involve at the same time the base of the tongue or pyriform sinuses are more easily distinguished, the sense of hardness or infilteration, on palpation being a valuable sign. The microscopic test, while invaluable, is not always conclusive."

Dr. Robert C. Myles, New York, N. Y.: "The subject of malignant growths of the larynx is one to which I have given considerable attention. Many of the points have not been decided, and the evidence usually brought forward is of such a character that it would not be entertained by a jury. The diagnosis is frequently the expression of a faith, a belief or a guess, and not a determination reached after careful consideration of logical and admissible evidence. I was once connected with a case in which both sides were thoroughly discussed, and there were many points which were left undecided. In regard to the transformation of an innocent tumor into a malignant one, this question is also unsettled. In regard to the operation, I believe that the radical operation should be made early. You all know that there are operations after which the patient apparently gets well, but that the growth afterwards returns. I do not know that my experience differs from that of others, but I have found the infant and most insignificant growths to be the most troublesome in regard to determining their true pathology."

Dr. E. Fletcher Ingals, Chicago, Ill.: "I would like to be placed on record as fully in sympathy with the statement that there is no special liability of a laryngeal benign tumor being transformed into a malignant growth; but I cannot agree with the statement that such transformations do not take place in some instances. On the contrary, such changes do occur just as with tumors in other parts of the body."

Dr. Hanau W. Loeb, St. Louis, Mo.: In regard to the possibility of the transformation of benign into malignant growths, I am with the other members of the section who have spoken. The mere operating is to me incomprehensible as a reason for transformation.

I was struck with the statement of Dr. Myles in regard to maintaining an opening. I remember one case, in which there was complete stenosis as a result of small-pox; there was complete adhesion of both alae to the septum. To maintain the opening I used two rubber tubes which were made after the fashion of Simrock's speculum. These were worn without dis-

comfort for six months, later being worn only at night, and at present there is a complete and satisfactory opening."

Dr. M. R. Ward, Pittsburgh, Pa.: "The subject of Dr. Pierce's paper is of special interest to me, inasmuch as I now have under observation what appears to be a benign growth undergoing malignant transformation. The patient is that of a young girl, seventeen years of age. Three years ago, following an attack of epidemic influenza, she first noticed that her voice was husky. The hoarseness continued to grow worse, and on consulting a physician, she was informed that she had a growth on the left vocal cord, which was subsequently removed by Dr. Day. On a microscopical examination, the growth was pronounced a simple papilloma.

Almost two years after this operation she consulted me. An examination of her larynx then revealed an ulceration involving the anterior third of her left vocal cord. Hoping that the disease might be of a specific nature, the patient was placed on large doses of potassium iodide for at least three months with negative results. Tuberculosis also was excluded by physical and microscopical examinations.

The patient continued to grow gradually worse. The ulceration extended posteriorly; the submucous tissue was infiltrated and swollen; the left arytenoid became anchylosed; and the chink of the glottis narrowed to one-third of its normal size in full inspiration. There were sharp shooting pains in the left ear. The patient became cachectic, and was losing rapidly in flesh. There was no external glandular enlargement. The dyspnoea became so alarming that the patient was sent to the Mercy Hospital, where I performed a thyrotomy on April 13, 1896. On opening the larynx numerous irregular, nodular masses were found and removed, and their base thoroughly curetted.

Portions of the growth were again submitted to a microscopist, who pronounced it an epithelioma.

Taking into consideration that the disease originated in the anterior commissure—the usual seat of benign growths—the exceptional age of the patient, the slowness of the growth, and the primary microscopical examination, I think we are warranted in saying that the disease was originally benign. I am aware that many eminent men doubt that such transformations ever take place. But so good an observer as Semon, whom Dr. Pierce freely quotes, says that in a study of 10,747 cases of benign growths of the larynx, 3382 were papilloma. Of this number 480 recurred and required repeated removal; 12 underwent spontaneous degeneration; 31 underwent degeneration after intra-laryngeal operations. For reasons of varying weight, he excludes 15 of the 31 as doubtful cases of degeneration follow-

ing operation, accepting, however, sixteen (16) as well authenticated.

In a study of the literature on this subject, one is struck with the singular absence of microscopical examinations of the primary growths, and the diagnoses being based upon the gross appearance of the neoplasm, and the clinical history of the case. How uncertain must necessarily be such diagnoses. In the absence of the use of the microscope, our clinical records must justly be open to doubt and criticism. I would, therefore, urge its constant and scientific use in order to obtain more accurate statistics on these points."

Dr. Max Thorner, Cincinnati, O.: "I would like to refer to Dr. Myles' paper. The obstruction of the nasal vestibule is by all means the worst thing that can happen after operations. In the operation advocated by Dr. Myles I think we have good means to prevent such occurrence. One case I had was that of a young man who had been struck on his nose by a kicking mule. Nothing had been done and there was an entire occlusion of the right nostril. I made the incision and occlusion followed, and when he returned it was as bad as before, if not worse. Later on I made a flap from the upper lip, turned it upward into the nose and sewed it to the inner surface of the ala nasi, after having loosened it from its adhesions. Then I packed the nostrils with iodoform gauze. The result was not an ideal one; but the improvement was great and permanent.

In regard to Dr. Casselberry's method, I have used it in about eight or nine cases and my results and experiences were about the same as his. I use it only in such cases where the patients are timid and nervous. As to the current, the current in Cincinnati is stated to be about 110 volts, but it varies from 108 to 115. I cut it down to 8 volts, and use from three to six milliamperes. The difference in strength of current between Dr. Casselberry and myself is accounted for by my using a different milliamperemetre. I use the one made by Hirschman of Berlin, which is extremely delicate and accurate. In fact, his whole apparatus is very reliable, no shocks of any kind being ever experienced by the patient, as the increase or decrease of strength of current is very gradual.

The rheostat used is a water rheostat. My experience as to results, corresponds closely to that of Dr. Casselberry. Bony spurs are not at all affected by it; the best results are seen in soft cartilaginous excrescences. No pain is felt by the patients, although in one case, that of a very nervous woman, peculiar dizzy sensations were complained of. Only the bipolar method should be used. The method is worth trying it.

Dr. W. E. Casselberry, Chicago, Ill.: "I tried to make it plain in my paper that it was not my custom to attempt to reduce

all spurs of the nasal septum or even all cartilaginous spurs by the process of electrolysis; that I selected the cases for this method of treatment in accordance with the size, location and composition of the spur and somewhat in accordance with the degree of timidity or nervousness of the patient, some cases objecting or being unsuited to the surgical method. I was led to test electrolysis for two reasons: first, on account of previous disagreeable experience from hemorrhage by the surgical method, even in trivial cases, and second, by the remarkable results that seemed to have been obtained by Moure and others by electrolysis. I examined it to find out what was in it, and I regard it as a useful addition to my resources for the treatment of this class of cases, but by no means worthy of exclusive reliance.

Regarding secondary hemorrhage, of course it is possible, but I have not met with it. Electrolysis should not be confused with galvano-cautery—they have nothing to do with each other, and I do not use them for the same purposes.

Some Observations Made During the Treatment of Chronic Catarrhal Deafness.

By Thos. H. stid, . . B., M. D., Galesburg, Ill.

The treatment of chronic catarrhal deafness may be considered under three heads; treatment of the ear directly, attention to the throat and nose; attention to conditions of the body in general.

Intra-tympanic operations, Dr. Shastid divides into two very well defined classes. Into the first of these, he places such procedures as, while of doubtful utility to the hearing, are of some, even though slight, danger to life. These are the operations for the removal of one or more of the ossicles with or without part or all of the drum membrane, and mobilization of the stapes. The second class consists of single and multiple incisions of the drum membrane, partial myringectomy, plicotomy, traction on the handle of the malleus, tenotomy of the tensor tympani. These operations are often productive of much good, seldom, if ever, of harm, and are, moreover, when properly performed, entirely unattended with danger.

A certain case that yielded good but temporary results on the application of Lucae's sound, yielded far more lasting results to that treatment after the tendon of the tensor tympani had been divided. Division of the tensor tendon in three other cases did not prolong the duration of improvement produced by the sound.

In all cases of chronic catarrhal deafness which are of great severity and which are unamenable to other treatment, all intra-tympanic operations should be tried which are not positively

contra-indicated and which do not endanger either hearing or life.

The use of Dr. Barclay's shaft and handle in conjunction with instruments for intra-tympanic operations is of great service. Dr. Barclay's idea constitutes a real progress in otology.

Massage of the nasal and pharyngeal mucous membranes, when these structures are the seat of atrophy, is of use when it is continued for a considerable time.

A patient who was undergoing treatment for chronic catarrhal deafness suffered, at intervals, a considerable aggravation of his trouble. Investigation disclosed the fact that the exacerbations were due to occasional doses of belladonna. Tests seemed to show that the deafening effects of the drug were exerted chiefly upon the middle ear.

Uncommon Accidents Following Operations in the Nose and Throat.

By Max Thorner, A. M., M. D., Cincinnati, Ohio.

The consideration that one accident is often more instructive than many successful cases has prompted the author to report a few cases where undesirable sequelae have followed operations in the nose and throat. Only such cases are reported which are rather remarkable on account of their rarity.

Case 1.—FUNCTIONAL APHONIA, FOLLOWING CAUTERIZATION OF THE PHARYNX FOR CHRONIC FOLLICULAR PHARYNGITIS. A young lady, 18 years old, consulted me on account of her voice giving out during any prolonged attempt at loud reading or speaking. She had a well developed chronic lateral and follicular pharyngitis, and some remnants of adenoid vegetations, in cushion shape, in the vault of the pharynx.

One day, after a number of galvano-caustic treatments had been made (at intervals of from 8 to 12 days), with a very noticeable improvement of her voice, a large hypertrophic follicle, situated about in the center of the posterior pharyngeal wall, was cauterized, when suddenly the patient said in a whisper, that her voice was gone. There was complete aphonia. I was naturally alarmed. Upon laryngoscopic examination the image was found to be the same as in functional aphonia; the vocal cords approximated during an attempt at phonation for an instant, but separated again at once. This condition lasted for a few days, when it vanished almost as suddenly as it had appeared, without any special treatment. There was at no time a recurrence of this reflex phenomenon, although the same treatment was continued for some time, with the result of entirely restoring the voice of my patient. I must add that this patient was a strong and healthy young woman, and was not at that time, nor at any time thereafter, belonging to the great army of hysterical women.

Case 2. TEMPORARY AMAUROSIS FOLLOWING CAUTERIZATION OF THE NOSE. Nasal polypi had been removed, by the cold wire snare, in a patient 40 years old. When the nose was thoroughly cleared there remained a few very small ones in the crevice between lower and middle turbinated body, which could not be engaged in the snare. I decided to destroy them with the galvano-caustic burner. One day, following such a treatment on the previous afternoon, the patient told me that he could not see with the right eye, the side operated upon. The eye upon examination showed no departure from the normal; he could discriminate between light and dark, could see objects held closely before his right eye, but could not count fingers at a distance of five feet. Ophthalmoscopic examination was entirely negative. Vision improved after five days and was gradually and entirely restored within about four or five weeks.

Case 3. LOSS OF MEMORY FOLLOWING AN INSIGNIFICANT OPERATION IN THE NOSE. A boy of about 16 years of age, from one of the interior towns of Ohio, was operated upon for almost complete nasal obstruction. There was a marked deviation of the septum, and enormous hypertrophies of the lower and middle turbinated bodies. These hypertrophies were removed at intervals of from four to six weeks, during which time the boy always returned home. After two or three operations had been performed, without any untoward symptoms, the boy returned for another operation. This time I succeeded in removing but a small piece, the size of a green pea, from the middle turbinated. There was but moderate hemorrhage, but as the boy had just passed through an attack of tonsillitis, I decided not to do any more. I saw him the following day at 10 o'clock, found him in apparently good condition and cheerful, and he left on an afternoon train. When he arrived home, about four hours later, he was in an almost absent-minded condition. During the night the family physician telegraphed me to inquire what kind of an anaesthetic had been used. On the following day from a letter of the physician I learned that the boy had arrived with a high temperature; his conjunctivae were hyperaemic, pupils dilated, he complained of headache, and above all he was absolutely unconscious of everything that had happened since he left home. The pain and fever subsided within two days; the pupils became more normal; but the loss of memory remained for about six weeks, during which time his mental activity was very much impaired. Gradually during the course of the next 3 or 4 months, all his mental faculties returned, although the memory remained for some time sluggish. When I saw him again, several months thereafter, he was in perfect health; and his parents had courage enough to have the treatment continued, which was thoroughly success-

ful without any further accident.

Case 4. INTUBATION IN AN ADULT FOLLOWED BY A FATAL OEDEMA OF THE LARYNX AFTER EXTRACTION OF THE TUBE. The patient, 18 years old, had been suffering for 8 years from what had been considered asthma, the dyspnoea, increasing of late to an alarming extent. No syphilis could be traced. There was great dyspnoea, the respiration was labored, noisy, and accelerated The face of the patient had a livid color on exertion, and was covered with a cold, clammy perspiration. The stenosis of the larynx was extreme. The ventricular bands were greatly thickened, and the vocal cords buried in masses of infiltrated tissues. The encroachment on the lumen of the larynx increased in the subglottic space, the opening for breathing being scarcely the size of a thin lead pencil. The smallest tube of the intubation set, made for adults, was introduced into the cocainized larynx without difficulty. This tube is a little larger than the largest tube of the set used for children. The patient could readily breathe through the tube and complained of no pain. The tube was to remain in the larynx for 24 hours ,but after 15 hours the patient returned, and begged to have the tube removed. He stated that he was greatly annoyed by it, and could not take any food whatever. I extracted the tube without any difficulty, with the understanding that it was to be re-introduced in the evening. The patient was relieved, was able to take some water, and left my office after a few minutes feeling comparatively comfortable. About 15 minutes later, he was found dead on the sidewalk, about one half square from my office. He had walked about one and a half squares from my office, when, feeling sick, he asked the driver of a passing wagon to take him to my office. Scarcely had he been seated when he fell back and suddenly expired, on being lifted from the wagon. A physician who passed there shortly afterwards found no signs of life in him.

The unfortunate accident can be easily explained. After the pressure exercised for 15 hours by the tightly fitting tube upon the infiltrated tissues had been suddenly relieved, a subglottic oedema ensued, causing a fatal issue within a short time.

Case 5. SEVERE NEURALGIA AND SPASMODIC COUGH AFTER A NASAL OPERATION. Miss B. K., aet. 24, consulted me on account of excessive sneezing which had been troublesome for several years, but had become well-nigh exhausting of late. The anterior and lower portion of the left middle turbinated was enlarged, almost the size of a cherry, of a deep purple hue, and touched the septum. Upon the lightest touch with the probe an excessive fit of sneezing was sure to follow, which would immediately stop after the application of a four per cent. solution of cocaine. This hypertrophy was re-

moved with the cold snare. One half hour after the operation, the patient was taken with a most severe attack of coughing, a symptom which was entirely new; and not long thereafter a most intense neuralgia of the left side of the face developed, which nothing short of morphine and chloral hydrate would give her rest during the following night. The neuralgia lasted for several days, when it gradually disappeared, while the spasmodic cough vanished only after 2½ weeks. There was no local condition present that could account for it, the wound having nicely healed without any disturbance and without further interference. There was afterwards no return of these symptoms, or of the sneezing.

These few cases, collected at random from my note-book, could be easily multiplied. As there were all more or less alarming, and appeared to me somewhat unusual, I thought they might be of sufficient interest to be placed on record.

Stricture of the Upper Portion of the Trachea Successfully Treated by Divulsion Through the Larynx.

Dr. J. O. Roe, Rochester, N. Y.

Miss H., twenty-seven years of age, had suffered seven years from frequent and urgent attacks of dyspnoea, following an attack of diphtheria which she had in March, 1888. One year after this attack of diphtheria, she had albuminuria with oedema of the feet, the dyspnoea at that time being ascribed to laryngeal oedema. After a while this condition improved; but since that time, except during the warm weather in mid-summer she had frequent and often urgent attacks of dyspnoea.

At the time that she came under the observation of Dr. Roe, November 23rd, 1895, the difficulty in respiration was found to be due to a constriction of the trachea about an inch below the vocal bands. The opening through this constriction was so small that respiration through it was extremely difficult. There was also associated with this constriction a subglottic laryngitis.

A year and a half ago the cartilaginous portion of the nose began to be absorbed, and after a time it diminished in size sufficiently to cause considerable deformity of the nose. This was thought to be of a specific character, although no evidence of specific infection could be obtained.

Intubation of the larynx was resorted to for the dilation of this stricture, but the irritability of the larynx was such that the patient could not tolerate the tube. Dr. Roe then tried the divulsion of the stricture with a dilating instrument of his own device which has resulted in an almost complete obliteration of the stricture, so that the respiration is now maintained entirely free.

The interesting points in this case are the association of the stricture with the albuminuria, the chronic subglottic laryngitis,

and an evident hereditary specific taint which was undoubtedly present.

Malignant Disease of the Nasal Cavity, Showing the Value of Early Diagnosis.

Jas. A. Shorter, M. D. Macon Ga.

I will mention briefly a case of what proved to be a malignant tumor of the interior of the nose, to show what difference of opinion as to diagnosis there may become amongst competent men.

It was the case of a gentleman who was sent to me from Milledgeville, Ga., about a year ago. He complained of a lump on the side of the neck under the jaw, and a feeling of obstruction in the left nostril.

On examination, I found a large polypoid growth in the upper part of the left nasal cavity, which I presume sprang from the ethmoid, and which I thought presented the appearance of malignancy. I removed a large piece, examined it myself, and also had it examined by a most competent microscopist, who pronounced it a carcinoma. I informed his family physician of the confirmation of my opinion, and recommended an immediate operation as holding out the only hope of relief, though I did not think the growth could be radically removed without resection of the superior maxilla.

I did not see the patient again. The family became very much alarmed after my diagnosis, and sent him to a specialist well known throughout the South. This gentleman disagreed with my opinion, pronounced the trouble syphilis, and promised the patient and friends a speedy cure. In spite of vigorous medical treatment he grew worse and began to lose in flesh, and suffer great pain. I wrote and suggested that he go to some hospital where he could have the best advantages. He then went to New York, consulted a well known surgeon, who had sections of the tumor made for microscopical examination. It was decided to be a fibroma, and non-malignant. The surgeon removed the growth by section below the orbit—resecting the malar and part of the superior maxillary bones, and promised the patient complete recovery and no recurrence of the disease.

On returning home his physician wrote me in high spirits to the above effect. I replied that I sincerely hoped for such favorable outcome, but much doubted it.

About three weeks later, the tumor reappeared and the patient died at the expiration of three months, with probable extension into the cranial cavity. There was headache, paralytic trouble, and great exopthalmus.

The diversity of opinions in this case strikes me as being unusual, as one of the very formost men in the South pronounced it syphilis—another eminent surgeon of New York pronounced it non-malignant—both after careful examination, yet the pa-

tient succumbs promptly to what was evidently cancerous disease.

Discussion.

Dr. D. Braden Kyle, Philadelphia, Pa.: "In regard to microscopic examinations as mentioned in Dr. Shorter's case, I find that it is not always possible to make a diagnosis from the tissue sent for examination, but if certain rules are followed the examination is of value. In a microscopic examination we must take into consideration the fibrous stroma, the blood vessel, and the cell; the relation of the blood vessel to the fibrous stroma and the relation of the blood vessel to the cells, and the relation of the cells to the fibrous stroma. In the case reported by Dr. Shorter I would like to know whether there was any ulceration of the tumor. In the mucous membranes, especially of the upper air passages in which there is very little of connective tissue elements and where it lines a bony cavity, the small round cell (embryonic) of inflammation would resemble very much a sarcoma, and if there was ulceration you would find the vessels beneath mere sluice-ways and lacking vessel walls, nothing more than an attempt at organization of the embryonic tissue, and not necessarily malignant, although resembling sarcoma. Such an eminent authority as J. Bland Sutton states that it is impossible to differentiate this condition from sarcoma. As carcinoma spreads by the lymphatics, has distinct and well outlined vessel walls, I do not see how the mistake in diagnosis could be made."

Dr. Cline: "In Dr. Thorner's case in reference to the aphonia I am inclined to think as Dr. Casselberry that it was the result of the cocaine. I recall three similar cases which I think were due to cocaine. One a man of very nervous temperament whose sphincter muscles were paralyzed for several hours—so much so that he had to go to bed. He also seemed to be unable to speak, which I attributed to the cocaine. As I stated yesterday, I am not in favor of the free use of cocaine unless I know my patient."

Dr. John O. Roe, Rochester, N. Y.: "I have been interested in the cases reported by Dr. Thorner, as similar complications sometimes occur to us all. In regard to the one in which the effect of the cocaine seemed to be quite unusual, I am also of the opinion that all the manifestations were the result of cocaine. Some patients are so extremely susceptible to its influence that all sorts of neurotic manifestations are caused by it. Notwithstanding this fact I daily use cocaine in my work freely and indiscriminately without the slightest bad results. When these patients, which are so extremely susceptible to cocaine, come along, however, we must use it with great care. In the case of a patient under my care not long ago, one single drop of a 4 per cent solution put into her nose would cause some agita-

tion of the heart, and a few drops would cause extreme dyspnoea, so much so that for a time suffocation would seem imminent. In her case I was obliged to resort to general anaesthenia in order to perform the necessary operation in her nose. I find in these cases of extreme susceptibility to cocaine that by giving the patient quite a large dose of Tr. digitalis a short time before employing the cocaine, and giving whisky in sufficient doses to very nearly intoxicate, this susceptibility to cocaine is overcome, so that all these unpleasant symptoms and cocaine complications are entirely obviated. In the case of this same patient just referred to, I have had occasion recently to do a slight operation in her nose, and by the use of digitalis and whisky I was enabled to use all the cocaine necessary to complete the operation without pain.

In regard to the cerebral complications resulting from operations in the nose, I have observed, in the cases reported, that these complications more frequently result from operations performed upon the middle or superior turbinated bone than from operations in any other portion of the nose. These bodies are a portion of the ethmoid bone which is closely related to the cranial cavity, and it is for this reason that under certain conditions disturbances in these parts may be transmitted to the meninges."

Dr. W. E. Casselberry, Chicago, Ill.: "I wish to say in support of Dr. Thorner, that I believe one may have temporary impairment of the voice reflexly produced by operations on neighboring parts independently of a suspicion of hysteria. In one case of combined operation for tonsils and adenoids on a boy five years of age, the tonsils being removed with the cold wire snare, and after the operation he spoke in a high unnatural voice, which lasted for about six days when he gradually regained his proper tone of voice. It could not be ascribed to other than irritation of peripheral nerves.

In reference to the author's other case involving the middle turbinated body I would ascribe the loss of memory to the use of cocaine. I have seen some curious temporary mental effects produced by cocaine. In regard to the middle turbinated body I would say that while I have advised operations upon it under certain conditions, I think we should be cautious. From the intimate association of the vessels of the middle turbinated body with the cerebral meninges, it is perhaps surprising that serious results should not be more frequently encountered. Operations upon this body should be restricted to those cases in which there is a very clear and decided indication therefor."

Dr. Robert C. Myles, New York, N. Y.: "I did not hear Dr. Thorner's paper, and do not know to what it referred, but presume from the remarks in the discussion that it was in regard to the use of cocaine. As for the fainting from the use of the

cocaine, I think it is very common. I have adopted the plan of preventing the solution from extending over a larger area than that on which I intend to operate, and I believe that a strong solution is better than a weak one. I also employ the reclining position as a remedy. I have noticed in a number of cases that when they were in the incipient stage of fainting, and that after they were placed in the horizontal position that they recovered at once. Sometimes a hot room will cause fainting. A peculiarity is that there is very little absorption about the tongue, and throat, but in the nose the absorption is very rapid.

In regard to operating on the middle turbinated, I think that the old way of tearing the body away with forceps is unsurgical and unsafe. The membrane continues through the cribriform plate into the cranium, and it is remarkable that serious consequences are not reported more frequently. The turbinated body can be removed neatly and effectively with the ethmoid clippers or scissors, and a cold wire snare.

Dr. J. E. Logan, Kansas City, Mo.: "I was very much interested in the paper read by Dr. Thorner for the reason that I have had some experience similar to his. My patient was similarly affected with this extreme irritability of the nostrils and experienced a great deal of the same trouble of excessive sneezing. I only refer to this case to make this suggestion, and that is, that in most of these cases the focus of irritation is in the anterior chamber. I have found that the application of the galvanic cautery to the middle turbinate has brought me better results than complete or partial removal with the snare. In this patient I removed a considerable portion of the midle turbinated and packed with iodoform gauze, and for several months afterward the patient had a disturbed sense of smell. The sense of smell was perverted as he was troubled with the odor of iodoform for months. It disturbed me, and while in New York, I had him go to a friend of mine and he confirmed my opinion that it was due to the very nervous temperament of the patient. The sneezing did not return but the perverted sense of smell remained for six or seven months.

Accidents liable to happen in the nasal cavity, as results of operations, are many for the reason that the nose and throat are the seats of great reflex action, more so, probably, than any other cavity of the body, especially the laryngeal cavity, and I am not surprised that the removal of the enlarged follicle was the cause of the aphonia. I have found the cause of this sudden aphonia to be very hard to explain. In the case in which there was involvement of the cords without loss of muscular power it would lead me to suspect hysteria; the cords would be under the control of the patient to a certain extent. I have had this experience with hysterical patients.

In regard to the case of Dr. Roe, is it not probable that it is

more or less of specific type? The Doctor states that it was simply a settling of the cartilaginous septum and unattended by any ulceration, and that the bone septum was intact, This would make it a very peculiar and interesting case. I have seen many of those cases which had no evidence of external ulceration but there would be an ulcerated condition of the septum."

The discussion has turned off partly on cocaine poisoning which I did not consider. I want to say that the operation which caused the temporary loss of memory was done on the soft part of the middle turbinated, and not on the bone itself. Operations on the middle turbinated are much more dangerous than on the other parts. Some surgeons go into the middle turbinated just any way, but if you will examine the connections around this closely you will readily see that it is a dangerous place to operate, and the wonder is that we have not accidents more frequently. As to the operation for the removal, I always prefer cold snare. This simply cuts away the bone as clean as can be done. The old way of tearing out is certainly dangerous. The galvano-cautery is also very dangerous in this neighborhood. I have heard of a number of deaths that were the result of cauterization, and how many are not reported? There are others who favor the removal with the cutting forceps, which if properly made is also well adapted for operations of this kind.

The principal danger of operations in this vicinity lies in the anatomical relations. We have the immediate neighborhood of the orbit, separated from the ethmoid cells by the lamina papyracea. We have the immediate neighborhood of the nerves and blood vessels passing through the foramin opticum, through the fissurum sphenoidale, etc. The roof of the nasal cavity is thin and separates it from the brain. And yet there are and will be cases which must be operated upon.

In regard to too much operating being done, I would say that I was of this opinion, but I believe now that there is too little. Any one who sees a great number of cases will say that they are not operated upon enough.

In regard to the case mentioned, in which the patient would not be operated upon and got better, we will have such cases. We ought to try first to reduce the trouble, but if it does not subside but goes on, then it is time to operate.

Bony Growths Invading the Tonsil.

By Alex. W. Stirling, M. D., (Edin.), D. P. H. (Lond.) Atlanta, Ga.

The author described three cases, two of which by his request were examined by a committee of the society, who corroborated his statements.

In Case I, a hard immovable mass is felt by the finger coming from behind the right tonsil forward underneath to the level of its anterior surface, but forming practically part of its substance. Its point is rounded, apparently about one-eighth of an inch in diameter, but becoming broader and somewhat flattened laterally as it goes outwards, backwards, and slightly upwards. The finger pressed in front enters an angle formed by it and the inferior maxilla and when pressed between it enters another angle formed by its approximation to the right side of the vertebral column.

Case II. A slight protuberance above and in front of her right tonsil with the finger was found to be nearly the same as that described in connection with case I, with the following points of difference: In the second case it exists on both sides, though it is not quite so prominent upon the left side; it is also higher, farther forward, perhaps a little thinner, and with a more apparent upward direction.

Case III is a brother of case II. On both sides the bony growths differ from those of the previous cases, in that the hard masses are altogether in the posterior part of the tonsils, and much longer, reaching a full finger breadth below the level of the lower tonsillar border, are perhaps rather more slender and for nearly half an inch of the lower end on either side cartilaginous to the feel and movable.

These are not tonsillar calculi and are evidently congenital peculiarities. They do not arise from the lower jaw because they do not move along with it. The finger excludes the bodies of the veterbrae. The pterygoid plates are too far forward. The spines of the sphenoid are also distant. The bony prominence move along with the head on rotation and therefore do not belong to the axis; they might from shape and direction especially that of case II, belong to the transverse process of the atlas, the posterior limb of which is sometimes long as in the atlas shown, but they do not because they move with the head on nodding. The author concludes that they are elongated and somewhat displaced styloid processes, and of importance in relation to possible operations in their neighborhood.

Dr. W. E. Casselberry, Chicago, Ill., said: "I saw these very interesting cases reported by Dr. Stirling. The first case to which he has reference, as he has described here, is a very distinct pointed prominence on the right side occupying the location of the anterior pillar, which covers it more than the tonsil, although when it is stretched forward the tonsil will cover it. The curvature inward and position would satisfy me that it was a styloid process turned inward toward the throat. The other case had much the same condition but not so pronounced. The committee all agreed that the case was an abnormal styloid process. As Dr. Stirling has stated, it is of

some importance in connection with possible operations on the tonsils. In regard to operating, just here comes up the point that I have mentioned previously. Laryngologists should take more into consideration palpation. Upon palpation they would discover that there was something there of a hard nature and would be warned against operating. I do not think anything serious would happen if an operation were attempted; I think the instrument in both cases would probably slide over the projecting point rather than go through it. I would not make a tonsilotomy in that case or cauterize it, because the somewhat enlarged tonsil affords a useful padding to the short-pointed projecting styloid process.

True Nasal Hydrorrhoea, with a Report of a Case.

By Dr. D. Draden Kyle, Philadelphia, Pa.

True nasal hydrorrhoea is an exceedingly rare condition. No special lesion can be named, inasmuch as the peculiar discharge is present under so many conditions. It may follow trauma, with the escape of cerebro-spinal fluid. It may be associated with nasal growths, nerve lesions, carious teeth, cerebral lesions and malaria in a chronic form. It may be associated with atrophy of the optic nerve, and Hardie quotes seven cases in which this was present. Bosworth has tabulated eighteen cases, which he divides into two classes. (1) Those in which the escape of fluid is passive and painful, and (2) those in which the fluid gives rise to intense irritation.

After a careful search of the literature excluding all cases in which the clinical history is not given, the writer has been able to collect 27 cases—sixteen collected by Bosworth, with two reported by him; three by C. E. Bean; one by A. R. Anderson; two by Hardie and Wood; one by Keiper; one by Emory Jones, and the one reported in this paper.

The following is a tabulated list of the cases thus far reported:

CASE I. Reported by Ross,
London Medical and Surgical Journal, 1834, Vol. IV, p. 823.

CASE II. " " Forster,
New York Medical Times, 1892, Vol. II, p. 113-115.

CASE III. " " Elliotson,
Medical Times and Gazette, London, 1857, Vol. XV, p. 290; also Brown's Archives, Vol. III, p. 665.

CASE IV. " " Davies,
Lancet, 1870, Vol. II, p. 292.

CASE V. " " Tillaux,
Traite d'anat. topograph, Second Edition, Paris, 1878, p. 62.

CASE VI. " " Paget,
Medical Press and Circular, London, 1878, N. S. XXVI, p. 432; also Trans. Clinical Society, London, 1879, p. 43,

CASE VII. " " Althaus,
British Medical Journal, 1878, Vol II. p. 831; also Med. Chir'l. Trans., Vol. LII, p. 29.

CASE VIII. " " Fisher,
Deutsche Ztschr. fur Chir., Leipzig, 1878, Vol. XII, p. 369.

CASE IX. " " Speirs,
Lancet, 1881, Vol. I, p. 369

CASE X. " " Leber,
Graefe's Arch., Vol. XXIX, 1, 237.

CASE XI. " " Nettleship,
Ophth. Review, London, 1883, Vol. II, p. 1-3.

CASE XII. " " Priestley Smith.
Ophth. Review, London, 1883, Vol. II, p. 4.

CASE XIII. " " Priestley Smith,
Ophth. Review, London, 1883, Vol. II, p. 4.

CASE XIV. " " E. B. Baxter,
Brain, Vol. IV, p. 525.

CASE XV. " " Mathieson,
Norsk Magazin for Maegevidonskabon, Jan. 1877, p. 41.

CASE XVI. " " Vieusse,
Gaz. Hebd., 1879, No. 19, p. 298.

CASE XVII. " " Bosworth,
Diseases of the Nose and Throat,
Vol. I, p. 261.

CASE XVIII. " " Bosworth,
Diseases of Nose and Throat,
Vol. I, p. 262-263.

CASE XI X. " " C. E. Bean,
14th Annnal Congress, American
Laryngological Association.

CASE XX. " " C. E. Bean,
14th Annual Congress, American
Laryngolegical Association.

CASE XXI. " " C. E. Bean,
14th Annual Congress, American
Laryngological Association.

CASE XXII. " " A. R. Anderson,
British Medical Journal, London,
1892, Vol. I, p. 276.

CASE XXIII. " " T. M. Hardie & C. A. Wood.
New York Medical Journal, Vol.
LII, p. 264-8, 1890.

CASE XXIV. " " T. M. Hardie & C. A. Wood,
New York Medical Journal, Vol.
LII, p. 264-8, 1890.

CASE XXV. " " G. F. Keiper,
New York Medical Journal, Vol.
LVIII, p. 101, 1893.

CASE XXVI. " " Emory Jones,
Ophth. Review, Vol. VII, No. 78,
p. 97.

CASE XXVII. " " D. Braden Kyle,
American Medical Association,
May 8, 1896.

The history of the case reported to the association is as follows:

Two years ago the patient, male, aged forty, first presented himself for treatment. His general condition at the time was fairly good. For about six months he had had a profuse watery discharge from his nostril, which was, when he presented himself for treatment, constant, It at first presented an element of periodicity in that it occurred sometimes regular, although usually at irregular intervals. Three to four attacks daily were not unusual. The discharge was clear and profuse, the reaction was alkaline, giving the patient a sensation as of strong salt water snuffed within the nostrils, and very irritant not only to the mucous membrane but also to the muco-cutaneous surfaces. At first the attacks were preceded by headache and severe sneezing, which came on suddenly and without warning, and were followed by profuse discharge. With the beginning of the discharge both the headache and sneezing were relieved.

An examination of the nostrils during the attack showed the mucous membrane of the anterior cavities swollen, oedematous and boggy, almost entirely obstructing nasal breathing. The membrane did not present the appearance of acute hyperemia, but more that of a chronic congestion, being of a dull bluish red or pink tinge, but pale. The naso-pharynx and pharynx were slightly involved, but not to the extent of the anterior passages.

In the intervals of attacks the mucous membrane though slightly oedematous was paler, the color apparently being due to a pigment deposited within the cells (which later proved to be the case); the membrane on pressure was soft and boggy, not spongy, and pressure left indentations which slowly filled up, a characteristic of passive congestions. The naso-pharynx was slightly paler than during the attack. This condition continued for several months, the attacks becoming, while more irregular, yet more frequent until when he had been under my observation for five months the discharge was almost continuous. The general appearance of the patient was that of a severe attack of hay fever. There was no evidence of antrum or ethmoid disease.

Examination of the eyes was negative. There was nothing to show uric acid diathesis, but while the urine exhibited a low specific gravity, 1.012 to 1.018, the chemical analysis revealed nothing but a low percentage of urea. No casts could be found.

The blood examination showed 4,800,000 red corpuscles per cubic millimeter; white, 8,000. Hemoglobin, sixty per cent. of normal. There was considerable free pigment. Careful examination did not show any particular enlargement of the liver, or spleen.

Tube inoculations had been made repeatedly from the nasal

secretions, and while they showed many bacteria present there never were present any bacteria but what are ordinarily found in the abnormal discharge from the nares. A piece of tissue was removed from the left nostril, the section of which exhibited a small round cell infiltration of the submucosa, and dilated vessels with thinned walls. The epithelial layer was desquamated, the cells showing cloudy swelling and granular and hydropic change; the connective tissue cells were pigmented.

Inasmuch as malaria was on examination found to be mentioned as a possible cause, and since the patient had stated that one year before the attacks he had suffered from malaria, and was living in a decidedly malarial district, he was placed under anti-malarial treatment.

He was given bromide of quinine in five grain doses every four hours, and in addition one-sixteenth of a grain of the double sulphide of arsenic, the so-called, alternative tonic. This treatment internally with local applications, which the patient made himself, of an oily solution, benzoinol to which had been added to each ounce, menthol two grains and oil of sandal-wood three drops, was kept up for over two months. After two weeks the patient showed slight improvement, and at the present time, while not entirely relieved, is comparatively well. The attacks are very slight, and usually follow exposure or over exertion.

From a review of the cases it seems that the majority of cases belong to the second class, and that in nearly all the cases nasal hydrorrhoea is the symptom or local manifestation of a constitutional condition. The constitutional lesion follows, but in the second class of cases, in which the one reported should be classed, it is usually associated directly or indirectly with some circulatory lesion in which the venous return is impeded, producing in the nasal mucous membrane a cyanotic condition, analogous to congestive lesions in organs, as the lungs, liver and kidney, largely made up of mucous membrane and not necessarily the site of acute local inflammatory conditions. Mucous membranes when repeatedly congested tend to remain congested, allowing the leakage of serum into the perivascular tissue, which when near the surface becomes oedematous and the epithelial cells undergo in their effort to elaborate the excess of fluid, hydropic degeneration; the membrane relieves itself and again becomes infiltrated, accounting for the recurring attacks. Practically the condition may exist in any mucous membrane as is shown in the case reported by Miles. The lymphatic supply may be involved as shown in one of the cases reported by Miles (Trans. Internat. Ophth. Congress, Heidelburg, 1888). By reason of the intra-vascular pressure the tissue would undergo simple atrophy and impair to a great

extent sensation, and cases with this induced condition must not be confused with those properly of the first class.

Owing to the varied symptoms and etiological factors, no regular plan of treatment can be formed, but each case must be treated as to cause and irritation during the attack should be relieved by sedatives.

The Electro-Cautery Snare as an Excising Agent in Diseases of the Nose and Throat.

Hanau W. Loeb, A. M., M. D., St. Louis, Mo.

The doctor referred to a meeting of the Association in 1892, on which occasion he presented the electro-cautery snare devised by him. A larger field of opportunity since that time has enabled him to enlarge its sphere of usefulness and fixed his views in favor to a wider range of application for the cautery snare, in diseases of the nose and throat. The same snare is still used, but the instrument applying the electricity is of greater service than that which was formerly utilized. This instrument (the Aloe Converter) which is applicable to the alternating current reduces the voltage from 104 to 1, 1½, 2, 3, 4, 5, 6, 7, or 8 volts as the case may be, and it is suitable for cautery or the light.

This is accomplished by using a larger primary coil of fine wire, and a smaller secondary coil.

Middledorf in 1854, was the first to employ the electro-cautery snare in the removal of tonsils; later Koehler and Korzeniowski used the instrument for the removal of large polypus. Volto-

lini was not favorably impressed with it, by reason of the insufficiency and inconsistency of the current. While the electro-cautery snare has many well-meaning opponents, there are some who do not treat it fairly, especially Jurasz, who, Sendziak complains, after employing the electro-cautery snare in only two cases came to the conclusion that it was inconvenient, painful, and disagreeable to the patient on account of the odor it leaves.

In the following diseases the electro-cautery snare has been recommended and employed:

I. Nose.
   1. Anterior and Posterior Turbinal Hypertrophies.
   2. Polypi and other benign growths.
   3. Malignant Neoplasms.
   4. Spurs.

II. Rhino-pharynx.
   1. Polypi.
   2. Fibromata.

III. Pharynx.
   1. Hypertrophied tonsils.
   2. Tonsillar Neoplasms.
   3. Palatal Neoplasma.
   4. Elongated Uvula.
   5. Hypertrophied Lingual Tonsils.

IV. Larynx.
   1. Neoplasms.

I. NOSE.

1. ANTERIOR AND POSTERIOR TURBINAL HYPERTROPHIES. In these conditions the electro-cautery snare is almost ideal, permitting the quick removal of the redundant and hypertrophied tissue with celerity, painlessness and freedom from hemorrhage.

Sajous prefers the electro-cautery snare for posterior turbinated hypertrophies, and McBride uses it where the tissue can be engaged and Greville MacDonald prefers it for the removal of large pieces of the turbinated in spite of the objection that it induces considerable inflammation in the neighborhood from the generation of steam and that the cicatrisation is delayed. To this statement the writer objects.

2. POLYPI AND OTHER BENIGN GROWTHS. The essential advantage is in the number which may be removed at one sitting and the celerity of the removal. In addition the patient soon learns that the operation is more agreeable, more rapid, less bloody and more preventive of recurrence, while the inflammatory and infective sequelae are no more common than where the cold snare is used. Many authors have expressed their favor in its use.

Schmidt goes so far as to state that after using the cold snare

for three years, he returned to the electro-cautery snare, while Ball and others state that cauterization of the base resulting from the galvano-cautery ablation of polypi is productive of good results, which to the writer seems somewhat doubtful.

The electro-cautery snare is also available for the removal of other benign growths in the nose; it has been used by the writer with good effect in fibroma, adenoma, and papilloma. In one case of fibroma which projected from the rhino-pharynx, the vascularity was very great, the growth bleeding upon the slightest provocation; yet the electro-cautery snare caused the loss of but a few drops of blood. In the case of adenoma (very unique) the writer first used this instrument but in the later recurrence abandoned it, since on account of the softness of the tissue and slight amount of blood which was lost, the operation could be performed quite as well with forceps.

The electro-cautery snare is available in other growths of the nose for reasons similar to those which have been given in malignant tumors. While the natural tendency is towards the electrolytic treatment in those conditions, a great deal of good can often be accomplished by the electro-cautery snare and Michelson, Lincoln and Schmidt report cases of rhino-pharyngeal fibroma treated in this way.

4. SPURS. The writer does not advocate the snare in these conditions.

III. PHARYNX.

1. HYPERTROPHIED TONSILS. Lichtwitz states that the operation had lost cast for some time, but was revived through the writings of Knight, Garel, Loeb, Schmidt, Heryng and Sendziak; all of these continue to favor the electro-cautery snare, except Knight, who writes that, after a complete resume upon the subject of hemorrhage following tonsillotomy, he favors the guillotine.

Flatau intimates that those who have experienced serious hemorrhage after tonsillotomy are much inclined to replace the tonsillotome with the electro-cautery or electro-cautery snare, while McBride states that its use is only justifiable in preventing hemorrhage which he states is a rare occurrence. Bresgen, Bosworth and Potter object to its use, while Lichwitz, Yersant, Heryng, Sendziak and Schmidt are favorably inclined towards it. The latter finds that it requires no longer than the operation with the tonsillotome, and insists that it is to be preferred on account of the certainty that hemorrhage will not occur. To the writer there is no question as to the safety of the galvano-cautery tonsillotomy so far as hemorrhage is concerned, and in more than 300 tonsillotomies with the electro-cautery snare he has never found more than a few drops of blood, and in only one case was there a secondary hemorrhage

There is this additional affair to be considered that a much larger quantity of tissue may be removed, and the precision of the operation makes it possible to remove just what one desires. With the tonsillotome the amount of tonsil removed is purely accidental. If the instrument possesses a fork or lifting device the amount will depend upon pulling power of the fork, which to the surgeon cannot be known until after the excision. If there is no fork, the pillars of the palate will limit the removal. It is the writer's custom to pull the tonsil from its palatal bed by means of a pair of sharp toothed forceps and then engage the wire so that it is possible to remove the entire tonsil. Corroboration is announced of the experience of Schmidt, who states that he has frequently seen enlarged tonsils of which 1-5 only had been removed by a previous tonsillotomy.

Even in tonsils which are impacted between the palatal pillars will it be found of service, inasmuch as it is possible to remove quite a considerable portion by means of the snare.

TONSILLAR NEOPLASMS. Any tonsillar growth which has not involved and attached itself to neighboring structures is susceptible of excision with the electro-cautery snare.

PALATAL NEOPLASMS. Tumors of the palate which may be engaged within the loop are suitable for removal with the electro-cautery snare.

ELONGATED UVULA. Attention was called in a previous paper to the removal of elongated uvula by means of the electro-cautery snare; for this operation is a very acceptable one. It entirely prevents all possibility of hemorrhage and the hot snare operation finds an indication in the ease with which the uvula can be engaged, the perfect stump which remains, the smaller amount of pain succeeding the operation as compared with ordinary uvulotomy. It is the writer's practice, after the uvula has been properly cocainized, to permit it to fall into the loop and after deciding exactly where the section is to be made, to draw the wire tight and send the current through.

HYPERTROPHIED LINGUAL TONSILS. The writer's experience in this particular affection is confined to one case; however, it seems to offer an inviting field at least. Sendziak commends it highly.

IV. LARYNX.

NEOPLASMS. Some favorable mention is made towards the electro-cautery snare in these affections, but it seems to the writer that there are some serious objections on the score of inaccessibility and impossibility of keeping the site in perfect view, the danger of inflammatory reaction and the possibility of the excised tumor falling into the larynx.

In conclusion it was stated that the electro-cautery snare had a possible indication in laryngeal tumors and nasal spurs; an invit-

ing one in hypertrophied lingual tonsils, palatal, tonsillar and rhino-pharyngeal growths and a certain one in the removal of hypertrophied tonsils and turbinates, nasal polypi and elongated uvula.

Discussion.

Dr. W. E. Casselberry, Chicago, Ill.: "I think the success of treatment by the electro-cautery snare depends very largely upon the perfection of one's apparatus. I think that Dr. Loeb deserves a great deal of credit for having designed an apparatus by which he can gauge and perform these operations with facility. He is fortunate in having his converter and an alternating current. I have been unable to find a satisfactory galvano-cautery rheostat by which to use directly the Edison or continuous current, so I use the storage battery, I use for this purpose the double American cell, keeping it stored constantly by the Edison current in connection with my light, so that the flow of the current from the battery seems to be uniform. I am not accustomed to take nasal polypi with the cautery snare. I formerly did it, but have stopped, for the reason that it makes the nose sore. I can remove about as many as I care to at one sitting with the cold snare. I remove tonsils in adults sometimes by the cautery snare. It has the advantage of avoidance of hemorrhage and the disadvantage of making a very sore throat. I think to remove the uvula by the cautery snare must make a more painful wound than by the usual method.

Dr. Hanau W. Loeb, St. Louis, Mo.: "I expected to hear more criticisms than have been made, and I rather think, perhaps, they would have been deserved, for I am sure that my love for the electro-cautery snare has made me rather dogmatic. I use a better instrument than those usually employed. Most of the instruments have too large a handle and are too heavy, but I have somewhere in the gray matter of my brain a little handle in view which will greatly obviate this trouble.

I think Dr. Casselberry deserves a great deal of credit for his faithful work with that abdominal machine the winding cautery snare. I use the McIntosh handle, which has a sliding arrangement by which the loop is tightened in a moment.

It is unfortunate that in so many cities the direct current is still used. Since the consolidation, however, of the Edison and Thompson companies, they are not using it so much and soon the alternating current will be utilized in all of the larger cities. In reference to Dr. Thorner's point about trouble from cauterizing the adjoining part, if the wire is drawn tight before sending the current through this will be obviated. The trouble with the instruments is, that you have to pass the wire through the uvula and then back again. In mine there are two perforated wires which are threaded like a Sajous' snare.

There is no question but that in many cases the inflammatory reaction from the electro-cautery is greater than the cold snare; since I have become more familiar with the use of the instrument I have severe inflammatory results less frequently. The patient who has once had the electro-cautery snare used will not want any other. It is the best in operating upon the uvula, because one is not required to pull down the tip in any way. I simply let the uvula fall into the loop and turn on the current. In the scissors operation you are apt to cut off more than is necessary of the mucous membrane, and in addition the inflammatory results are greater. I have presented this paper, because there is a scantiness of literature in regard to the cautery snare for operations in the nose and throat. I hope that when we next speak on the subject, I shall have more to say in favor of it."

APPEARANCE OF AN INFLAMED EYE DURING FAINT —A Clinical Note.

GEO. F. KEIPER, A. M., M. D.,
OF LA FAYETTE, IND.

EYE AND EAR SURGEON TO ST. ELIZABETH HOSPITAL, ST. JOSEPH ORPHAN ASYLUM, ETC.

THE following observation may be of interest to the readers of the ANNALS. On May 8th, 1896, while leeching Mr. August A's left temple on account of a severe plastic iritis of the left eye, I noticed my patient becoming very pale. The leech used was Heurteloup's artificial one. Inquiring of him how he felt, he said he felt hot and was becoming blind. Immediately the door was opened, the leech removed and he was asked to lie down which he declined to do. The sensations very soon disappeared. Accidentally opening the left eye the appearance was very peculiar in that it was almost as pale as the other. The attack of iritis was very severe, the whole conjunctiva was one mass of capillaries and the cornea was hazy from the accompanying keratitis; hence examination with the ophthalmoscope was impossible.

When the faint disappeared the eye resumed its former condition becoming as red as it was before.

NOTES AND ANNOUNCEMFNTS.

(The Annals will be pleased to publish, under this heading, items of interest to its readers. Address, Dr. Casey Wood, 103 East Adams street, Chicago.)

At the annual meeting of the Illinois State Medical Society, Dr. A. C. Corr of Carlinville, was elected President.

Dr. Wm. Thompson of Philadelphia, has been elected ophthalmic surgeon to Wills Eye Hospital.

We are sorry to hear that Meyer, the author of the well known text book on Ophthalmology, is in ill health and has been obliged to leave Paris for a time.

At the annual meeting of the American Neurologic Association held at Philadelphia, in June, Dr. M. Allen Starr was elected President for the ensuing year.

Dr. George E. de Schweinitz was elected President and Dr. H. M. Starkey, Secretary, of the Ophthalmological Section of the A. M. A. at its recent meeting in Atlanta.

Dr. Edward Jackson has returned from Denver, Colo., to 1633 Locust street, Philadelphia. He has resumed practice and will attend to his usual college lectures and hospital work.

Dr. Wm. Thompson has resigned the professorship of Ophthalmology in Jefferson Medical College, and Dr. Geo. E. de Schweinitz has been elected to fill the vacant chair. We congratulate both Dr. de Schweinitz and Jefferson.

Dr. Giovanni Rosmini of Milan, died last March in Nervi, whether he had gone on account of his health. The friend, assistant and contemporary of Quaglino, he was one of the founders and chief supporters of the Ophthalmic Hospital at Milan.

The French Congress of Alienists and Neurologists will hold its annual session this year at Nancy, commencing Aug. 1st. Among the subjects assigned for special discussion we notice with interest, the following: "The Pathogeny and Pathologic Physiology of Hallucinations of Hearing."

The many friends of Dr. E. L. Holmes, professor of Ophthalmology and Otology in Rush Medical College, will be pleased to hear that that gentleman is recovering from the serious illness that has confined him to his house for the past six weeks. Dr. Holmes will take a trip to the south of England, as soon as his health permits.

Following the example set by similar societies abroad, the Section in Ophthalmology (A. M. A.), through the Executive Committee, chose for each session a different chairman from amongst its members. The plan seemed to work admirably and met with the approval of the section.

On May 6th last, Dr. Lucien Howe occupied the chair at the seance of the Socrété Faancaise d' Ophthalmologie. We understand that Dr. Howe's paper on the Prevention of Blindness from Ophthalmia Neonatorum was well received by the Congress.

Dr. W. C. Pipino, of Des Moines Iowa, was fatally injured on June the 3rd, while horseback riding. He was about 45 years of age and was born in Baltimore, Md., removing to Des Moines about 10 years ago. Dr. Pipino enjoyed a wide reputation in Iowa as an Ophthalmologist.

A certain Company that manufactured an antiseptic wash, widely advertised by the lay press, is in difficulty, since judgments have been recorded against it. We learn with regret, that a New York throat and ear specialist was largely interested in, if not at the head of the concern. Apart from the ethical aspects of this affair, we are reminded by it of two proverbs—one ancient, one modern—"Ne Sutor ultra crepidam" and "Schuster blieb bei beinem Leist."

The indications are that the meeting of the Mississippi Valley Medical Association to be held at St. Paul, on Oct. 20, 21, 22 and 23, will be the largest and most successful in the history of the Association. As all the railroads will offer reduced rates for the round trip, an opportunity will be given to visit St. Paul and Minnesota during the most delightful season of the year. Send titles of papers and write for information to H. W. Loeb, M. D., 3559 Olive street, St. Louis, Secretary.

The Western Ophthalmological, Otological and Rhinological Association will hold their next annual meeting at St, Louis, Mo., April, 1897. The officers for the ensuing year are: President, Dr. Adolf Alt., St. Louis, Mo.; Vice-Presidents. Dr, E. B. Freyer, Kansas City, Mo.; Dr. W. C. Pipino (deceased), Des Moines,, Ia.; and Dr. J. H. Martindale, Minneapolis, Minn.; Secretary, Dr. Hal Foster, Kansas City, Mo.; Treasurer, Dr. W. L. Dayton, Lincoln, Neb.

We clip the following from a recent issue of the New York Sunday Herald:

Monmouth Beach, N. J., June 20, 1896.—The first bathing accident of the season occurred here this afternoon, when Dr. Herman Knapp, of New York, was carried from the surf in an exhausted condition. Dr. Knapp left the bath house at four o'clock. He is an expert swimmer, and was soon out in deep water. He was bound for the shore when his daughter, Miss Hattie Knapp, who was standing on the shore, saw him go down.

Realizing that her father was about to drown, she grasped a life preserver and heroically rushed out into deep water, without waiting to change her wearing apparel, arriving none too soon to save him. Dr. Knapp grasped the life saver and was pulled into shallow water.

Dr. Argyll Robertson has been honored by Edinburgh University with the degree of L.L. D. In presenting him Professor Grant said: In the special department of Ophthalmology, Dr. Argyll Robertson holds an unique position. He has examined with fruitful results the mode in which the eye accommodates itself to objects near and distant, and the effects of remedies on that adjustment; and, above all, he has discovered that certain symptoms of the pupil are indicative of disease of the spinal cord. These symptoms have now in the medical world become associated with Dr. Argyll Robertson's name. He was for several years lecturer on ophthalmology in the University of Edinburgh, and it was with a lively regret that the University received last year his resignation of an office which he had discharged with such acceptance. He has enjoyed the rare distinction of acting as President of the International Ophthalmological Congress, and he is the only oculist not resident in London who has been called to fill the Chair of the Ophthalmological Society of the United Kingdom.

The manager of a medical journal has his troubles quite apart from those of securing leader writers. One of the most annoying and at the same time one of the most unnecessary, is the unceasing demand from those who should know better, that the reading columns of his journal shall frequently present articles descriptive and sometimes eulogistic of some pill, powder or potion. The article thus presented as a "reading notice" is usually written by some impecunious or unknown M. D., who, for a consideration or gratuitously, has furnished our advertiser with this wedge to force the Journal. The thin edge is inserted when the article is written as a scientific one. There is a phase in this matter that is not quite understood. If Editor Jones or Editor Smith shall, as many do, decline to publish the material, then the advertiser may make it a personal matter and withdraw the advertisement. This procedure we are sorry to say, is growing more and more frequent. Let us ask advertisers to look this matter squarely in the face. There are two sides. Editor Jones, we may say, has given much thought to this subject, and wishes his esteemed friend C. C. of Selldrugs & Co., a large and prosperous business, but he cannot comply with the request of the Messrs Selldrugs & Co. He tells them in effect that he has only advertising space for sale in the advertising department. The scientific department of his journal, he explains, is not intended for advertisements,

and in fact he has no right to sell any part of it. To do so would be an open violation of an implied contract with his readers. In the case of the Medical Journal, the manager has no right to sell or give away his scientific space; that part of the journal does not belong to him for that purpose; it is actually already paid for by the subscriber. *Journal of American Medical Association* July 4, 1896.

BOOK NOTICES.

The Fundus Oculi with an Ophthalmoscopic Atlas Illustrating its Physiological and Pathological Conditions.

By W. Adams Frost, Ophthalmic Surgeon to the Royal Westminster Ophthalmic Hospital, 228 pp. 107 colored plates and 46 figures in the text. Young J. Pentland;Edinburgh and London. McMillan & Co; New York.

No Ophthalmoscopic atlas has yet been issued whose colored drawings compare in fidelity of execution with, or whose illustrations reflect such remarkable likeness—images of the fundus oculi as the classic and immortal work of Jäger, now 27 years old. Occasionally plates are published in periodicals and text books that remind one of the pictures in the *Ophthalmoskopischer Hand-Atlas*, but they are rare; either the drawing has been poor or the reproduction has been faulty The chief sin seems to be the introduction of too much yellow in the red tint of the back ground. Another short coming is the glazing of some portion of the picture and still another is the exaggeration of the pathological or other departure from the ideal fundus specially intended to be shown by the plate.

There are fewer examples of these artistic defects in Frost's Atlas than in any we have yet seen, although when one compares plates 100—103 (illustrating retinal detachment,) with the soft *likeness* of Jäger's (Fig. 83 and 84), or Frost's plates 40, 41 and 43 (Choroidal changes) with figures 106 and 107 of Jäger. The failure of the Frost drawings to depict the diseased fundi in the instances mentioned is quite marked.

On the other hand the Frost Atlas possesses most admirable half tone drawings in the text which (necessarily absent in earlier Atlasses) go far towards atoning for defects in the colored engravings. These are so successful that we are sorry more were not introduced. Sixty eight pages of text are devoted (apart from plate descriptions) to normal variation in the background and about one hundred and fifty to a

description of pathologic conditions. There is a good index and the printer's work is well done. We would recommend to the man who is without a fundus atlas and who cannot get Jäger's to buy Frost's and if he possesses a Jäger we would advise him to supplement it with a Frost.

C. A. W.

Manuel Theorique et Pratique Du Strabisme, par E. Javal. Membre de L' Académie de Médecine. With 44 figures in the text, a colored plate and a box containing 48 cards, pp. 375. G. Masson, publisher, Paris, 1896.

There can be no doubt but that with all our boasted attention to refraction work and our love for establishing, when that is possible, perfect equiliebrium of the extrinsic ocular muscles the ordinary case of Strabismus is not treated in America with that careful consideration that Ophthalmologists in France usually bestow upon it. For this reason Javal's Manual calls for something more than a passing mention. It is by far the best and most complete monograph on the subject of Strabismus that has yet appeared and it is to be hoped that some competent translator will give us an English edition.

The work starts out, after some observations on physiologic optics, with a historic essay that should not be overlooked by the reader. This is followed by chapters on the physiology of binocular vision, description and measurement of strabismus and the treatment of the latter.

Chapter IV, on the employment of the stereoscope as a means of promoting and securing binocular vision is one that should be carefully read by every Ophthalmologist, because even the best of us is usually willing, with the parents of the strabismic child, to accept a certain cosmetic effect in lieu of the certainty of binocular vision, both for distance and near. Javal does not claim that this can be obtained in all cases of true strabismus, even where the vision in one eye does not greatly differ from that of the other, but he asserts that it is not accomplished in a fair percentage of instances simply because the surgeon is unwilling or neglects to expend sufficient time upon or does not exhibit sufficient patience with his patient in exhausting all the well known means to further the desired end, the stereoscope, properly arranged glasses, pris

exercise, decentred lens, etc. He attaches considerable importance to regulating the daily life of his patients so that they may use their eyes only in such a way and at such work as will not interfere with the accomplishment of this purpose.

It is not to be expected that the inventor of one of our most valuable instruments for the measurement of the corneal curvatures would neglect the subject of the relation of astigmatism to squint. Among other observations he repeats the contention, previously set forth in his classic *Memoires d' Ophtalmometrie*, that the corneal Astigmatism, both as to meridian and amount, may vary at times from various causes.

The chapter on the Repulsion of Images, False Projection, and Corresponding Points are very full and make entertaining reading. Although some of the plates are reproductions from the previous works of the Author and others, many of them are new and all are well executed.

C. A. W.

Etudes Ophtalmologiques. Par Dr. Chauvel, Médicin inspecteur de l' armee. etc. pp. 346. Felix Alcan, Editeur, Paris, 1896.

These studies were made bv the author during a fifteen years service at the Military Hospital of Val-de-Grace. He considers that Ophthalmology, as practiced among soldiers, differs somewhat from that carried on among the civic popula tion, but a cursory review of the twenty one chapters does not disclose much that differs materially from what one reads in the average text book. There are several hundreds of cases, (more or less fully reported) cited in illustration of various contentions of the author. These are, of course, all valuable while a few of them are new and interesting. In the next edition of this work it is to be hoped that Dr. Chauvel will publish a complete index.

C. A. W.

Color-Vision and Color-Blindness. A practical manual for railroad surgeons. By J. Ellis Jennings, M. D., Lecturer on Ophthalmoscopy and Chief of the Eye Clinic in the Beaumont Hospital Medical College of St. Louis, etc. Illustrated, cloth, 109 pages, $1.00. Philadelphia: F. A. Davis Company, Lakeside Building, Chicago. 1896.

This very interesting work is intended to aid the railroad surgeon in his examination of the employes of the transportation lines for the detection of color-blindness, and, as such, will meet the end it has in view. It will also be found instructive reading by the general practitioner.

The author has taken pains to present the theories of the leading investigators of this subject, and their methods for detecting color blindness, and has succeeded in compiling a manual which will commend itself to all who read it.

The Historical Sketch in the first chapter is a pleasant introduction to the subject.

Chapters two and three are devoted to the "Physiological Anatomy of the Retina," and the "Physics of Light," and "Sensitiveness of the Retina to color."

Chapter four treats of the theories of Young-Helmholtz, Hering, Preyer and the Correlation Theory as expounded by Oliver.

Chapter five is given to the "Classification of Color-Blindness," with its frequency, dangers and the laws of heredity.

Chapter six gives the methods of Holmgren, Thompson, Oliver and the author for detecting color-blindness.

Chapter seven explains the tests for the "Quantitative Estimation of the Color Sense."

Chapters nine and ten are devoted to the Pennsylvania Railroad Company's Instructions for Examination of Employees as to vision, color-blindness, and hearing"; and to a Description of Oliver's Series of Tests."

Guilford.

THE DIAGNOSTIC IMPORTANCE OF PUPILLARY DISTURBANCES. BAAS. KARL (*Sammlung zwangloser Abhandlungen aus dem Gabiete der Augenheilk,, Band 1, Heft 3, 1896*, Verlagvon Karl Marhold, Halle, a. s.

Observations as to pupillary changes date back to Hippocrates, and we find Paul of Aegina recognizing a distinction between the pupil of cataract and that of amaurosis with the recognition of the physiological anatomy of the eyes enervation, the association of pupillary reactions with diseases has been made more clear. (a minute description of the physiological innervation of the eye, illustrated by a diagram, is given.)

Among pupillary disturbances occurring in diseases proper may be mentioned the abnormalities of the optical system, inflammatory conditions associated with hyperemia of or exudation into the iris, and glaucoma.

Illumination of both eyes in uncomplicated disease of the centripetal portion of the optic reflex never produces unequal pupillary reaction. Simultation of blindness may be guarded against by observing whether or not pupillary contraction in sound eye follows the casting of light into the blind eye. Both pupils may fail to react to light, though sight remains good (involvement of Meynert's fibers,) or vice versa both pupils may react to light though there be complete amaurosis, (lesion in some part between the Gratiolet fibers and paycho-optical cortical center.)

The "hemianopic pupillary reactions" of Wernicke may also be of importance in the localization of a lesion; if the lesion be beyond the primary optical ganglia no hemianopic pupillary reaction can occur. Irritation of the oculo-motor nerve in any part of its course, whether of bulbar, orbital, menengeal or cerebral origin, will produce a spastic myosis; irritation of the sympathetic if of intra-cranial origin (psychical conditions, such as mania, melancholia, paretic dementia, aneurysm) produces a spastic mydriasis of spinal meningitis, myelitis and spinal tumors; that occurring in the dyspnoea of phthisis and that associated with various intestinal irritations (lead colic, tabes, cramps, labor pains) is to be located in the cilio-spinal center.

Oculo-motor paralysis, (glaucomo lesions of cranial nerves) gives rise to a paralytic mydriasis, uncomplicated paralytic mydriasis, especially if unilateral, should arouse suspicion of lues if in elderly people and of paresis or multiple sclerosis if in younger individuals.

Paralytic myosis may be recognized as of sympathetic origin if with it there are other symptoms of sympathetic irritation (ptosis, retraction and decreased tension of eyeball, unilateral congestion of face;) or it may be considered to be of spinal origin if there be reason to suspect a spinal affection. Argyll-Robertson pupil is present in tabes and less often in general paresis.

WÜRDEMANN.

Ophthalmic Therapeutics.

OHLEMANN, M. (*Augenartzliche Therapie für Aertzte und Studierende*, Verlag von J. F. Bergmann, Wiesbaden, 1896.)

This manual of 160 pages deals only with the treatment of eye diseases. Massage, hot and cold applications, douches, apparatus for administration, bandages of different forms, antiseptics, care of instruments, disinfection of the operated areas, surgeon's hands and bandages, sterilization and methods of administration of ophthalmic medicines are thoroughly described. Minute directions for subconjunctival injection are given together with the indications. As novel, is noticed injection of 1:1000 sublimat with 1/10 per cent solution of sodium chlorid which is more rapidly absorbed than the sublimat solution alone. Formalin is recommended as a collyrium in conjunctival disease in the proportion of 1:1000 and 1:2000. Astringents and salves, myotics, mydriatics, narcotics, anesthesia, the galvano cautery and electrolysis, constant and induced current, the magnet and leeching in its several forms are duly described.

Most of the book is taken up with methods and formulae for treatment of the various forms of eye disease, special attention being given to local treatment. Surgical and optical methods are but briefly referred to. This is on the whole a most satisfactory resumè of modern continental ophthalmic practice and is well worth acquisition by not only the ophthalmist but the general practitioner. Type and paper are very good. H. V. W.

The Restoration of the Visual Field in Normal and Pathoical Conditions.

WILBRAND H. (*Die Erholungsausdehnung des Gesichtsfeldes unter Normalen und Pathologischen, Bedingungen* Verlag von J. F. Bergmann, Wiesbaden, 1896.)

In this complete monograph of 181 pp. the author endeavors to explain by means of the Hering theory of light and color vision, the various phenomena due to physiologic fatigue of the retina, concentric contraction, the oscillating visual field and other forms met with in neurotic cases.

The reasons for these phenomena and symptoms are explained by the physiological act of regeneration of the visual substance (Sehstoffe) modified by the condition of the retinal assimilation.

An explanation of the Hering theory of light and color perception is given, the phenomena of contrast, recovery of function, fatigue, blinding, etc. in normal eyes is explained according to his view. Chapter 3 is devoted to those pathological conditions which are observed in cases of nervous asthenopia and differential diagnosis between functional loss of sight and organic lesion of the optic nerve are given. He concludes that in the neurotic eye there is a relatively slower restoration of the sight substance from light stimulation than that which occurs in the normal eye.

In the chapter 4 he discusses these conditions in acquired hemeralopia stating that while the fundus changes are sometimes not visible to the ophthalmoscope there must be a lesion in the retina, nerve or choroid from such diseases as chorio-retinitis-syphilitica, choroiditis disseminate, pigment atrophy of the retina, retinitis pigmentosa and sublatio retinae.

The last chapter is devoted to congenital hemeralopia and is followed by a number of diagrams and visual fields.

(While the theory of Hering in regard to the supposed perceptive and differentiating function of the visual purple (Sehstoffe) is plausible it has always seemed to the editor that the theories of light and color perception advanced by Burnett and by Oliver which *place the perception* and *differentiation of light and color entirely within the brain* are much more simple, and that by considering visual perception to be entirely in the brain cells the functional diseases and neurotic anomalies of vision may be more readily comprehended.) (See Burnett "Theories ef Color Perception," Amer. Journ. Med. Scien. July 1884.

Oliver, "A Correlation Theory of Color Perception," Amer. Journ. Med. Scien. Jan. 1885.

Würdemann, "Color Perception," Amer. Journ. Ophth., June & July 1889.) H. V. W.

The Visual Field.

BAAS, KARL (*Das Gesichtsfeld;* Verlag von Ferdinand Enke, Stuttgart, 1896.)

This is a book of 264 pages, a most complete and valuable addition to literature appertaining to the visual fields. The author refers extensively to the German literature of the subject, but as usual with continental writers, almost ignores American writings. One hundred exceptionally well taken diagrams of the visual field and other illustrations are given. He shows in three good schematic diagrams, the anatomy and physiology of the normal field, and of the blind spot (devoting some 60 pages to the normal visual field.) He connects the clinical picture with the symptoms and shows the anatomical and physiological reasons for the same. Under this heading he discusses diseases of the choroid, the retina, the nerve, glaucoma, hemiopia and functional diseases. Several new observations and lucid explanations make this book especially valuable and indispensable to the progressive ophthalmist. It is to be hoped that the publishers may bring forth an English edition. H. V. W.

Relation of Cataract to General Diseases.

HESS (*Ueber Linzentrubungen in Ihren Beziehungen zu Allgemeinerkrankungen*, Verlag von Carl Marhold in Halle, 1896.)

A monograph of 39 pages upon the relations af cataract to general diseases. Lenticular opacity is due to changes in the nutrition of the lens which may come from trauma as when the capsule of the lens is torn or when the lens is luxated, from inflammation or new growths in the neighborhood of the lens or when the fluids of the organism are changed. Cataract may result directly from general disease or constitutional changes to which category belongs he senile, diabetic and naphthalin forms. The nutrition of the lens may be affected secondarily as occurs in posterior polar cataract, through retinitis pigmentosa and choroiditis and in cataract which is a complication of iridochoroiditis. Description is made of the nutrition of the sound lens, changes in the lens due to diabetes, experi-

mental naphthalin cataract, congenital cataract and that due to choroidal diseases and complicated cataract. The literature on the subject to date is extensively quoted.

H. V. W.

Experiments Upon the Topographical Relations Between the Retina, Nerve and Optic Tract in Rabbits.

PICK. ARNOLD (*Untersuchungen ueber die topographische Beziehungen zwischen Retina Opticus und gekreuztem Tractus opticus beim Kaninchen.* Aüsgefuhrt unter Mitwirkung des Privatdocenten Dr. J. Herrnheiser. Mit 12 Tafeln. Nova acta der Kaiserlichen Leopoldinisch-Carolinischen Deutschen Akademie der Naturforscher Bd. LXVI, No. 1. Halle 1895. Für die Akademie in Commission bei Wilh. Engelmann in Leipzig. Ref. H. Sachs, Breslau) has experimented by means of galvano cautery, upon 200 rabbits destroying certain spots of the retina and by means of March's method has examined the resulting degeneration in the nerve and optic tract. Blinding the eyes by direct sunlight causes too great a diffuse destruction, so galvanocauterization was found most useful. No result was found in the uncrossed fibers as these are so few in rabbits. He gives the results of the examination of the nerve in the tracts together with the lesions in the retina in 24 rabbits as well as in one cat, a rat and a mouse. Sections, thirty times enlarged, through the tract and nerve and a number of sections through the chiasm are shown. The examination was restricted to the peripheral sections of the retina and their peripheral nerve fibers which were destroyed.

The following facts are given as a result of his experiments: The nerve fibers keep their relative positions during their entire course in the optic nerve as well as in the tract. The nerve fibers cross in the chiasm in regular order; first the inner bundle and then those of the periphery. Sections of both nerves made at same distances from the eyes are similar in character. The under portion of the nerve carries the same fibers as the under portion of the tract. The inner part of the nerve goes to the outer part of the tract The outer part of the nerve to the inner tract. The upper fibers are continued on the upper part of the optic tract.

There is only horizontal crossing of the fibers and not in a vertical direction. The topographic relation between the retina and nerve can be precisely established. The different sections of the retina correspond in general to simularly situated sections in the optic nerve which likewise correspond to those of the optic tract as heretofore described.

H. V. W.

Treatment of Toxic Amblyopia.

Eversbusch, O. in Erlangen (Sond.-Abdr. aus. d. Handbüche d. spec. Therapie innere Krankheiten II. p. 441. Jena 1895, Gust. Fischer.) describes intoxication-amblyopia and diseases of the fundus following acute and chronic poisoning, especially tobacco amblyopia, diseases of the optic nerve, of the muscles and other parts of the eye. A special chapter is devoted to the prophylaxis and treatment of intoxication-amblyopia. In chapter 4 there is a list of commonly ordered medicines which in susceptible persons may produce inflammation in certain parts of the eye or even severe toxic symptoms. The mydriatics are especially dangerous as by taking them even in small quantities mydriasis is produced; glaucoma or severe general disturbances have also been observed. H. V. W.

Treatment of Diseases of the Eye Following Infectious Diseases.

Everbusch, O. in Erlangen. (Sond.-Abdr. aus d. Handbüche d. spec. Therapie inner Krankheiten, pp. 605. Jena 1895, Gust. Fischer.)

As infectious diseases on account of their commonness are of great interest to the physicians so are the resulting eye diseases. Beginning with the diseases of the eyelids Eversbusch describes all discases which are caused through general infectious diseases. Book is written in sufficiently clear language so that the physician not directly interested in eye diseases may readily gain an insight into their nature and treatment. H. V. W.

Test Types for Reading.

FUCH, E. (*Lese-Proben für die Nähe, Jäger's Type Modified.*, 2nd edition, Vienna; Verlag von Franz Fritsch)

has modified Jäger's and Snellens' type on account of their irregular scale, having had made a series of only the first 16 numbers which are most used, for the reason that constant use of the first sheet for the near test renders the book soon dirty and it is necessary to have new ones while the balance of the pages remain good. The edition is inexpensive to replace as it costs but one mark (twenty-three cents.) H. V. W.

Ophthalmic Lecture Charts.

FROF. MAGNUS (*Die topographischen Beziehungen der Augenhoehle zu den umgebenden Hhoelen und Gruben des Schadels*; von Prof. W. Czermak in Prag. Breslau, 1895. J. U. Kern's Verlag (Max Muller.) Gr. 8. (9 Mk.).

This contains 14 charts of sections of the eye and the neighborhood, well colored and drawn so that even without the text they would be readily recognized and remembered. Sections are shown in frontal, sagittal and horizontal meridians. H. V. W.

Report Upon the 24th Meeting of the Ophthalmological Society, Heidelberg, 1895.

Bericht Ueber die Vierundzwanzigste Versammlung der Ophthalmologischen Gesellschaft, Heidelberg, 1895 (Red. durch W. Hess und W. Zehender. Mit 9 Abbild. Stuttgart 1895. Drück der Union Deutsche Verlagsgesellsehaft, 8. 284 S.

Twenty-three articles are considered which occupy a space of 284 pages. The most important are the following:

FUCHS, Ernst,—*Erythropsia* in normal as well as in aphakic eyes. It is not produced by blinding but from long continued irritation such as occurs through snow blindness. The aphakic eye is easily rendered red-blind on account of the removal of the lens which has been demonstrated by Helmholz to absorb the short waved rays of light. When the pupil is dilated erythropsia more readily arises. Erythropsia may begin with objects appearing greenish and later light purple. The macular region may be much nearer the periphery of the retina in aphakic eyes than in normal eyes. Erythropsia is not to be considered

an after image but is due to the previous bleaching of the visual purple following prolonged stimulation.

Von Hippel and Sattler have two articles upon the *Operative Treatment of High Grades of Myopia.* Von Hippel has operated within two years on 60 eyes on account of high degrees of shortsight. The lens is discided and extracted in from one to three weeks. In only two cases had inflammation followed the operation. The difference in refraction before and after operation was 14 to 24 diopters. Both eyes should be operated upon. In one case a child of ten having a myopia of 10 diopters was operated but in all the other cases the myopia was from 12 to 14 D. Sattler had done the same operation on 68 eyes in 52 persons, the youngest being 6 years old and the eldest 68. He believes that myopia of less than 12 D. should not be operated upon.

UHTHOFF, *Pathological Anatomy of Suppurative Keratitis.* (Reviewed in Annals of Ophthalmology and Otology, Vol. V, II, April 1896, page 286.)

LEBER, upon an *Uncommon Form of Conjunctival Disease (Conjunctivitis Petrificans.)* Leber and Von Hippel have seen chalk formation in the conjunctiva in two cases aged of 18 and 23. Parasites were not found.

VOSSIUS describes a case of *True Lipoma of the Upper Eyelids* in a man of 56.

MICHEL describes the *Crossing of the Optic Nerve Fibers in the Chiasm.*

BACH, L. *Experimental Studies upon Sympathetic Ophthalmia.* (Reviewed in Annals of Ophthalmology and Otology, Vol. V, April 18th, 1896, II, page 296.

RINDFLEISCH, has seen a case of *One-Sided Paralysis of the Sphincter of the Iris* in a woman of 46.

LEBER on the *Change of Fluids in the Anterior Chamber* says that it is not possible to determine the direction of the lymph stream in the anterior chamber of the living subject. For instance when fluorescin is injected into the aqueous humor, the diffusion of the color could be observed but not the movement of the fluid. It can be seen, however in recently eneucleated eyes, that the anterior chamber fil-

trates outwards. In the living the aqueous is renewed in about half an hour.

VON HIPPEL Jr. writes upon *Parenchymatous Keratitis.* He had examined 80 cases of parenchymatous keratitis, in the most of which heriditary syphilis was diagnosed, but in 13 it was excluded, in which tubercular disease was probable. He recommends inunction treatment.

AXENFELD upon the *So-called Anterior Ciliary Nerves* declares that it is impossible to make a sharp distinction between these nerves, the terms long and short and direct and indirect, as customarily applied, being unscientific.

KRUCKMANN, *Method for Distinguishing the Sensibility to Touch and Pain of the Cornea and Conjunctiva.* He examined the sensation by touching with bristles and fine hairs. By increase in the pressure the sensation is increased; also increased in herpetic and trigeminus affection, etc. Myotics at first increase sensation and afterwards diminish it. Mydriatics produce opposiie effects.

ZIMMERMAN recommends *Cauterization and Antiseptic Treatment in Ulcus Serpens.*

GROENOUW, recommends *Eserin in Glaucoma as a Palliative Treatment.* Healing of the glaucoma is not procured through eserin but the process is retarded through continued use of the same.

KALT advises *Large Irrigations of Sublimat* (1:10000) or hypermanganat of Kalium (1:3000) *in Veneral and Granlaur Conjunctivitis.* Nitrate of Silver is not recommended.

SCHWARZ, writes on *Hysterical Blindness.* He considers disturbances of the vision to be hysterical only when there are no optical or other organic changes and when suggestion decidedly improves the symptoms and where concentric contraction, inversion of the colors, disturbances of sensibility in the cornea and conjunctiva are present without lesion. H. V. W.

The Diagnostic Importance of Pupillary Disturbances-.

BAAS, Karl. *(Die Semiotische Bedeutung der Pupillensto,*

rungen. Verlag von Karl Marhold, Halle; Sammlung zwang loser Abhandlungen aus dem Gebiete der Augenheilkunde, 1. Band. Heft 3, 1896.)

Observations as to pupillary changes date back to Hippocrates, and we find Paulus of Ægina recognizing a distinction between the pupil of cataract and that of amaurosis. With the recognition of the physiological anatomy of the innervation, the association of pupillary reactions with diseases has been made more clear. (A minute description of the physiological innervation of the eye, illustrated by a diagram, is given.)

Among pupillary disturbances occurring in diseases proper may be mentioned the abnormalities of the optical system, inflammatory conditions associated with hyperemia of or exudation into the iris, and glaucoma.

Illumination of both eyes in uncomplicated diseases of the centripetal portion of the optic reflex arc never produces unequal pupillary reaction. Simulation of blindness may be guarded against by observing whether or not pupillary contraction in the sound eye follows the casting of light into the blind eye. Both pupils may fail to react to light, though sight remains good (involvment of Meynert's fibers), or, vice versa, both pupils may react to light, though there be complete amaurosis (lesion in some part between the Gratiolet fibers and psycho-optical cortical center).

The "hemianopic pupillary reaction" of Wernicke may also be of importance in the localization of a lesion; if the lesion be beyond the primary optical ganglia no hemianopic pupillary reaction can occur. Irritation of the oculomotor nerve in any part of its course, whether of bulbar, orbital, meningeal or cerebral origin, will produce a spastic myosis; irritation of the sympathetic, if of intra-cranial origin (psychical conditions, such as mania, melancholia, paretic dementia, epilepsy), or if external cranial, usually unilateral (tumors of neck, aneurysm) produces a spastic mydriasis. The mydriasis of spinal meningitis, myelitis and spinal tumors, that occurring in the dyspnoea of phthisis and that associated with various intestinal irritations (lead colio, tabes, mesaraica, cramps, labor pains) is to be located in the cilio spinal center.

Oculo-motor paralysis (glaucoma lesions of cranial nerves) gives rise to a paralytic mydriasis. Uncomplicated paralytic mydriasis, especially if unilateral, should arouse suspicion of lues if in elderly people and of paresis r multiple sclerosis if in younger individuals.

Paralytic myosis may be recognized as of sympathetic origin if with it there are other symptoms of sympathetic irritation (ptosis, retroaction and decreased tension of eyeball, unilateral congestion of face); or it may be conside ered to be of spinal origin if there be reason to suspect a spinal affection.

Argyll-Robertson pupil is present in tabes and less often on general paresis. H. V. W

Report on the Progress of Otology in the Years 1892 to 1894.—By Dr. Louis Blau, Berlin. (Leipzig, Otto Wigand, 1896).

The third biennial report by the author whose original contributions are familiar to the readers of Schwartzés Archiv fuer Ohienheilkunde, is a brief but accurate resume of the advances made in otology within that important period. Of the 200 octavo pages devoted to this object, about 80 are given to articles on diseases of the middle ear and their treatment; demonstrating which department of the specialty demands the greatest attention of the best investigators of to-day. The present status of the pathology and treatment of cholesteatoma, for instance, which has called forth so many expressions of opposing views, is well presented by succinct statements of the various opinions. The literature covered by the little volume is exceedingly extensive, including doctorate theses, reports from private clinics, and minor periodicals, many of which are inaccessible in America.

MORGENTHAU.

Review of the Present State of Otology: the Results of Twenty-four Years of Statistical Observation. By FRIEDRICH BEZOLD, Professor of Otology at the University of Munich. (Weisbaden, 1895.)

This work has not received its well-deserved recognition,

for few books say so much in 196 pages. The material for these statistics is the result of the author's own observation; it is therefore uniform. The conclusions are accurate and clear. But few changes in the methods of observation were made during the whole period, and these were thoroughly considered and strictly carried out. The reader is well paid for a careful study of the book by the numerous suggestions it offers.

The first part gives general statistics. The total number of patients is 4,341; of diseased organs, 4,876. There were: Male, 58 per cent.; female, 42 per cent.; children, male—53.7 per cent., female—46.3 per cent.; adults, male—59 per cent., female, 41 per cent.; 20.1 per cent. were children, 79.1 per cent. adults. This number, compared with Bruckner (43.6 per cent. children), proves that there is less care taken of children in Munich, which is all the more deplorable, as the greater number of ear diseases in childhood will yield to treatment, and many diseases of adults, as diseases of the eustachian tube and the sequelae of scarlatina, can be traced back to this time.

These statistics show that, thanks to the accuracy of the diagnosis of the various diseases of the auditory organ, a remarkable constancy of the figures has been obtained. The functional examination has become more minute. The great importance of small perforations in Shrapnell's membrane, and of the posterior superior part of the drum membrane has only lately been appreciated, since they are often indicative of cholesteatoma and necrosis of the oscicles.

In examining table II one is impressed by the long standing of the majority of diseases following scarlatina; generally more than eight years, some up to forty-four and fifty-two years.

Table III illustrates that almost all the acute and a large number of the chronic suppuratious healed with complete closure of the perforation. The total number of operations is 538. The number of adenoid operations, 107, seems rather small compared with the large number of children. The second part gives a total review of the single diseases and has great historical value, describing the progress in

accurate diagnosis and treatment of ear diseases within the last twenty years. It begins with the

EXTERNAL EAR: 4,991 cases; 23.1 per cent. of the total number of diseases. Its subdivisions are:

1. Atresia of the external meatus and rudimentary development of the auricle was observed eleven times. The malformation is in the vicinity of the first bronchial cleft. One post mortem was made, and showed that the annulus tympanicus was missing and there was a complete absence of the external meatus. In such cases an operation would have a cosmetic effect but could not produce a functional improvement. The inner ear proved normal, as reported in other cases; as was also illustrated by two children with atresia of both external ears, both able to hear loud conversation.

1. Eczema of the auricle and external meatus 256=1.3 per cent. of the total number, occurs mostly in adults and on one side usually. Eczema of the external meatus after the use of the boric acid is reported as exceptional and explained by idiosyncrasy of the individual.

2. Furuncle 684=3.3 per cent. of the total number, is observed mostly in adults on one side. The treatment is lancing and inserting a pledglet of cotton covered with iodoform.

3. Different forms of otitis ext. diffusa, 488=2.4 per cent.; without otomycosis and otosis ext. crouposa, 250= 1.2 per cent. There is a large variety of forms. Yet this number is smaller than in former years, because many cases could be diagnosed more accurately and placed in their proper category, among the diseases of the middle ear.

Otomycosis (145) was observed mainly in adults on one side only. The treatment was removal of the mould and filling the external meatus with 2 per cent. solution of salicylic acid in alcohol. If the fungi have entered the middle ear, injections of boric acid solution are recommended,

Otitis ext. crouposa was observed 93 times, also mostly in adults, in one ear. A membrane is formed, similar to those on the mucous membranes. This disease is very painful, and treated by syringing the ear and insufflating iodoform.

Exostosis (116=0.6 per cent) was never observed in children, generally in men. As long as it does not occlude the external meatus, there are no symptoms; therefore there was generally no treatment given.

Cerumen (1,289=12.6 per cent.). Few children are troubled with this. In older people long strips or shreds of epidermis, casts of the meatus could often be separated from the wax, resembling cholesteatoma of the external meatus. The center is sometimes calcified, sometimes softened.

Foreign bodies occurred 340 times=1.7 per cent. To remove them, the meatus was first lubricated with sweet oil and syringed with boric acid solutions. Exceptionally a little hook was used that could be bent as desired.

Diseases of the tympanic membrane (302=1.5 per cent.). One-third were ruptures. The author simply occluded the meatus with cotton.

DISEASES OF THE MIDDLE EAR: 14,255=66 per cent.; of which 25 per cent. were children, 75 per cent. adults. In 53.1 per cent., one ear; in 46.9 per cent. both were affected.

Otitis media simplex, under which heading are included diseases of the eustachian tube, 1,681=8.2 per cent. of the total number of patients of whom *55.7 per cent. were children.* In 77 per cent. both ears were affected. The most frequent causes were adenoids, which were removed with Gottstein's knife. The author never saw any bad effects or complications (inflammations of the middle ear) from this operation. Hypertrophy of the tonsils may also cause occlusion of the tube. For therapeutic as well as diagnostic purposes inflations of air, very exceptionally by means of the catheter, were used with great improvement to the hearing. From numerous post-mortems the author concludes that diseases of the tubes are localized at their extremities, so that the pharyngeal end takes part in diseases of the pharynx, the tympanic end in those of the middle ear. If secretion is present, paracentesis is made with the head inclined toward the affected ear. It never contained any bacilli or cocci.

With otitis med. simpl. (*catarrhalis*) *acute and subacute* 1,831 patients were seen, 8.9 per cent. of the total number,

of whom 77.5 per cent. were adults, 68.9 per cent. on one side. Post-mortems and bacteriological examinations proved that there is no difference between simple non-suppurative, and suppurative forms. After measels perforation or other symptoms of inflammation of the drum may be absent (page 70) although muco-purulent secretions and other reactions of the organism are present. If the mucous-membrane of the middle-ear is unable to absorb all the secretions perforation ensues and secondary infections is possible. The therapy consisted in air douche, thus sparing the epithelium of the tube. Paracentesis was rarely necessary.

Otitis Media simpl. (calarrhalis) *chron.*, excluding diseases of the tubes 3324 cases=16.2%. 93.5% were adults, In 87% both ears were affected. They are divided into *a*. Chronic deafness with changes of the drum-membrane, scars, old perforations, adhessions, etc., (Residuen) occurs most frequently in adults. *b*. Normal appearance of the drum, the diagnosis is based on physical or functional tests, which show that a number of cases must be classed among the diseases of the inner ear, which formerly were classed among those of the middle-ear. If the appearance of the drum-membrane does not explain the deafness, this is the method of examination.

1. Examination of each ear separately by whispering numbers, slowly approaching the patient from the end of the room.
2. Determination of the limit for low tones.
3. Schwabach's test with tuning fork A.
4. Rinne's test is usually made with tuning fork a', and the number of seconds is marked during which the patient hears the sound longer by air than by bone conduction. If bone conduction is better than air conduction a minus-sign is put before the number (eg.—5).
5. The upper limits of the scale perceived is determined with the Galton whistle.
6. If there is a suspicion that the patient cannot hear all the sounds of the scale, the notes are produced quickly in a certain rhythm. The patient reports gaps.
7. The patient tells with which ear he hears the tuning fork A put on the vertex.

With some experience this whole examination does not take more than 10 or 20 minutes. As a typical example of disease of the sound-conducting apparatus take an ear in which a supperation has run its course. We find,

(1) The lower sound limit higher than normal.

(2) Bone conduction is better than normal. The lower the note the more marked the difference.

(3) (Rinne is much shortened or negative.

The Weber test shows that the tuning fork on the vertex is heard better in the diseased ear.

This is an example of a case where visible changes in the middle ear are to be made out; hence the conclusion:

Wherever, combined with a normal appearance of the drum-head and normal conditions on anscultation we find this triad of functional symptoms disease of the sound-conducting apparatus must be assurred: we call it otitis med. simplex chron. without depression of the drum-membrane.

c. The third group the author calls *Dysacusis*, which comprises deafness with negative appearance of the drum-membrane and indefinite functional diagnosis. There are 4.2% of the sum tatal, 94% of which are adults, in 78% both ears are affected.

We have to return for a moment to *b*. Ot. med. chron. without depression of the membrane. They are 7% of the grand total, 96% of which are apults, in 89% both ears are affected. Slight opacities of the membrana tympani are included as well as those cases in which the membrane shows a slight diffuse redness of the intermediary part, which points to ankylosis of the stapes. There are reasons why the number is as high as 7%. The patients are mostly adults, few are less than 14 or more than 50 years old. 61% of the 7% are females, the high number being attributed to the great influence of pregnancy and confinement. Furthermore heredity plays a great part; 52% having relatives who are hard of hearing. The most frequent symptoms are subjective noises (78%) then dizziness. This disease involves also the pathological condition in which the ligamentum annulare of the stapes is impregnated with lime salts, called ankylosis of the stirrup. Other authors (Politzer) too state, when Rinne's test is

constantly negative, we must expect ankylosis of the stapes,

Very often Bezold finds the upper limits of perception of sound lower than normal and this leads him to the conclusion, that there usually coexists some disease of the labyrinth. He is not in favor of operative mobilisation of the stirrup, because the results are not satisfactory; he admits however, that he operated only a few times. His therapy consists in using the Lucae pressure-probe, Delstanche's rarefactor in the external meatus and air douche or catheter. The above mentioned transparent red color of the drum-membrane makes the prognosis very unfavorable.

Otitis media purulenta a., acuta with or without empyema of the mastoid cells is reported in children in 41.5%, in adults in 58.5%, and in 86% in one ear only. The percentage of children is a very large one. This disease heals very readily, although the perforation is usually small and up high in the drum-membrane. Around the edges of the perforation there are sometimes red swellings resembling granulations, which are however no proof at all of necrosis of bone, as would be the case in old chronic suppurations, but rather for the great tendency of the affection to heal. In acute Otitis med. purul. Bezold never could find a perforation of Shrapnell's membrane. A frequent etiological factor was Weber's nasal douche. The acute inflammations of the mastoid process were always combined with otitis media and like this were greatly inclined to heal. Exceptionally a suppuration can persist for months, for which B. holds the large cells in the mastoid process responsible, since they do not offer so large a surface for absorption, as the small ones do. 9% of all acute empyemas must be operated upon. Perforations behind and above the external meatus, and through the lower part of the mastoid process into the tissues of the neck occurs is 30% of all the empyemas.

Of Otitis media purulenta chronica 3454 cases have been observed, which is 16.9% of the total number. Adults count 70.5 per cent., and in 77.5 per cent only one ear is diseased. In the greatest number the perforation is large and of at least one year's standing. B. found that the mucus in the discharge is favorable; where this is lack-

ing, that is, when the mucous membrane is replaced by epidermis the pus is fetid. Later on, the bacteria of fermentation displace the pus bacteria. Besides there are cholesteatoma, necrosis of bone and sequestra which may keep up the suppuration. Granulations are of frequent occurrance. They are products of restoration, but they cause secretion and often retention, or prevent the epidermis from forming. Polypi therefore must be removed.

Sclerosis of the mastoid process, or concentric opposition of bone to the walls, so that the cells grow smaller and finally close, is in principle an advantage, because it creates more favorable conditions for the absorbtion of the secretions. Sometimes however, the *aditus ad antrum*, the exit from the cavities closes and retention of secretions ensues.

Otitis med. purul, chron. with granulations and *perforation of Shrapnell's* membrane, was seen in 1.2 per cent. of the total number, mostly in adults and largely in one ear. This is a very grave complication. It happens most frequently together with or after an affection of the Eustachian tube of long standing. Shrappnell's membrane is the weakest part of the drum-membrane' and is apt to be torn by the pressure of the external air, when the tubes are closed and the air in the middle ear is absorbed. The margins of the tear unite with the upper wall of the tympanic cavity. Infection of the attic becomes much easier since the bony margins of the opening are flattened, and the drum-membrane soon succumbs to a great extent. The epidermis grows over the walls of the cavities of the middle ear, the beginning of

Cholesteatoma. This has been observed in 1 per cent. of the grand total, 85 per cent. were adults, only one ear was affected in 90 per cent.

B. found epidermis in the middle ear in 18.5 per cent. of all the chronic suppurations. The perforation always reaches the margin of the drum-membrame at some place. The moisture favors the growth of epidermis and the formation of cholesteatomatous masses. If the perforation is large enough these masses may discharge into the meatus, otherwise fatal sequelae, as destruction of the inner table of the skull and the labyrinth are often described.

Of Otitis media phthisica purulenta B. makes a special heading, and has thereof 0.7 per cent. of the grand total. He finds it mostly in adults and only on one side. Tubercle bacilli are present, but this is not the principal feature.

The author lays much more stress upon the fact that, although the disease starts with acute symptoms, there is no reaction whatsoever. The post-mortem shows no swelling of the mucous membrane, no granulations, but large sequestra, which cannot be removed. It is not due to the effect of the bacilli that the tissues succumb without reaction but to the lack of resistency of the organism, since this disease only occurs in exhausted patients after scarlat fever, mealses, smallpox, typhoid fever, pneumonia, pyemia, diabetes, tuberculosis of the lungs. When general health improves, the disease improves quickly.

The therapy of the different forms of otitis med. purul., (1) acute is syringing with warm concentrated solution of boric acid, air douche, drying and inflating dry powdered boric acid. The only contraindication is idiosyncrasy of the skin, which shows itself by softening and eczema. If secretions are retained or there is a small perferation high up in the membrane an incision is made reaching down to the lower margin, and after careful drying boric acid is imflated.

If in acute otitis media purulenta a mastoid operation becomes urgent Schwartze's operation, that is opening into the antrum or at least the mastoid cells is indicated. Wilde's incision is no longer made. The treatment of otitis med. chron. is similar to that of acute. If cholesteatoma is present B. uses Hartman's antrum tube, air douche and in drying he inserts the probe with cotton as high up into tho attic as possible. For insufflation, again the antrum tube is used and a mixture of boric and salicylic acid (4:1 Siebenmann) is employed. After this treatment it is not exceptional for a cavity to remain dry for months or even years. If this treatment does not prove effectual or if acute symptoms set in operation is indicated. Since relapses after other methods of operating are frequent B. advocates Siebenmann's operation as described in Berl. Klin. Wochenschr 1893 No. 1, which secures a permanent opening, Thiersch's skin grafts being employed.

The next chapter treats of the *therapeutical results* in different forms of otitis med. purul.

Acuta 658 cases with perforation closed -	74.6 per cent.
Secretion ceased, perforation not closed -	5.9 per cent.
Secretion not ceased, perforation not closed	2.1 per cent.
Stopped treatment - - - - - - - - -	15.2 per cent.
Still under treatment - - - - - - - -	1.1 per cent.
Died - - - - - - - - - - - - - - -	1.1 per cent.

Of course the tables are well worth studying but cannot be copied here, they prove that B. obtains good results throughout.

Otitis med. purul. chron., 1701 cases, cured with perforation closed - - - - - -	2.7 per cent.
Secretion ceased, perforation remained -	54.2 per cent.
Suppuration persisting - - - - - - -	9.3 per cent.
Stopped treatment - - - - - - - - -	27.3 per cent.
Still under treatment - - - - - - - -	5.6 per cent.
Died - - - - - - - - - - - - - - -	1.0 per cent.

From this the author concludes that Schwartze's fear of the boric acid treatment is without foundation, In a comparatively great number (children 16 per cent.; adults 83.9 per cent,) the perforation may close after a long time, which can be proved by the number of scars found in later years.

Otalgia, that is, pain in the ear without any visible or functional signs of inflammation was found in connection with caries of the teeth, anemia, affections of the larynx and influenza. Table VIII proves the grave character of the ear diseases after scarlet fever, and the bad influence of neglect and carelessness, as also the great advantage of early treatment.

Diseases of the inner ear were found in 2314 cases or 10.7 per cent. of the total number. 14.3 per cent. were children, 85.7 per cent. adults. In 41.9 per cent. only one, in 58.1 per cent. both ears were affected. In all cases of long-standing and complete deafness there is labyrinthine disease. In 0.5 per cent the impairment of hearing was combined with defective speech. Congenital deaf-mutism 0.4 per cent.. Subjective noises with normal hearing is reported in 540 cases or 2.6 per cent. It occurs mostly in adults on one side.

B. finds acquired deafness in 1031=5 per cent. of the

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cases, of which 97.5 per cent are adults. In 79.5 per cent. both ears are affected.

The diagnosis of deafness without any sign on the drum-membrane is based upon

1. Abnormal increase of bone conduction (tuningfork A).

2. Great or small defect at the lower end of the scale, by air conduction.

3. Rinne's test (a′) is negative. All these tests must be made over and over again, if they have always the same result, the diagnosis of affection of the labyrinth should be made. Sometimes we find defects in perception of the upper part of the scale (Galton whistle).

The acquired deafness is divided into

1. Sclerosis of the labyrinth, which happens mostly in females, and can often be dated back to pregnancy.

2. Nervous deafness after trauma, detonations, after shooting, and especially in people who are working in noisy places. Furthermore in the course of syphilis, diseases of the brain, infectious diseases, after abuse of quinine, salicylic acid impairment of the sound perceiving apparatus was found. It is easy to differentiate these diseases with the aid of functional tests and the history of the patients.

Necrosis of the labyrinth was seen in 8 patients =0.04 C^1 per cent.

The tones of C^1, A, c, a, a′ were not heard by any of the ears in which the labyrinth was destroyed and the author says, that if none of the lower tuning forks are heard whispering can not be perceived either. Impairment of hearing, deafness and deaf-mutism, after cerebrospinal meningitis was found in 126=0.6 per cent. of the cases. 70 per cent. were children, in 92 per cent. both ears were affected. Impairment of hearing after mumps was observed 11 times or 0.08 per cent.

The treatment of diseases of the inner ear has but little effect. In the beginning injections of pilocarpin or big doses of iodide of potassium may be of some use.

Of malignant neoplasms 3 cases of carcinoma of the auricle, and external meatus and one of the middle ear were observed; with three cases of sorcoma of the middle ear, we have in all 7 cases of malignant neoplasms or 0,03%= 1 of 3,000 cases of ear diseases.

This abstract does not make any pretense of being complete, but it offers to the American reader the careful observations of an able scientist. The language of the book is sometimes so complex, that even the born German is compelled to analyze some sentences, in order to comprehend their full meaning.

J. HOLINGER.
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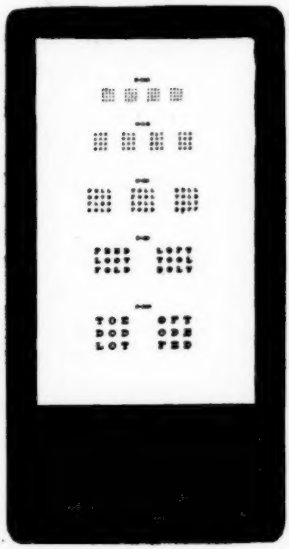

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PURULENT CONJUNCTIVITIS. If the period of active pus formation has continued for two days or more, the undiluted LISTERINE may be dropped into the eye every four hours. In those forms observed in infants showing a tendency to the formation of pseudo-membrane, LISTERINE is specially valuable, and of great service in all cases of muco-purulent or purulent conjunctivitis, preceded by the cleansing of the membrane with a solution of chloride of sodium.

GRANULAR EYE-LIDS. A weak solution of LISTERINE affords a great relief from the heated, burning sensation. The scaly, sandy exfoliation of the margins of the lids, and the shedding of eye-lashes is checked, and the constant succession of minute styes arrested.

OTORRHŒA. LISTERINE is largely resorted to in the treatment of diseases of both the middle and external ear, according to the varied views of the operators. Many precede the "dry treatment" by the gentle cleansing of the parts with LISTERINE, slightly warm, or LISTERINE and tepid water, equal parts. As inflammations of the middle ear are generally the result of an extension of inflammation from the naso-pharynx, treatment of these surfaces should be instituted from the onset of the attack. The nose and throat should be thoroughly cleansed with an alkaline solution, such as:

℞	Listerine,	f.	ʒi
	Glycerini,	f.	ʒiii
	Sodii bicarb., }	aa.	ʒjss
	Sodii biborat, }		
	Aquæ q. s. ad.,	f.	ʒiv *M.*

Sig. f ʒ i in ʒ ii warm water snuffed up the nose, and as a gargle for the throat three times daily.

Literature descriptive of LISTERINE upon application.

LAMBERT PHARMACAL CO.,

ST. LOUIS, MO.

SOLUBLE COMPRESSED

HYPODERMIC TABLETS.

ALL OF OUR HYPODERMIC TABLETS COMPRESSED WITHOUT FOREIGN ADMIXTURE, EXCEPT WHEN THE BULK OF THE MEDICAMENT IS LESS THAN ONE-TWELFTH OF A GRAIN.

Recent improvements in our Hypodermic Compressing Machines, enable us now to manufacture these tablets entirely free from any foreign material, thus insuring immediate solution and FREEDOM FROM ALL POSSIBILITY OF LOCAL IRRITATION.

We claim for our Hypodermic Tablets: *Absolute Accuracy of Dose, Ready and Entire Solubility, Perfect Preservation of the Drug.* Their convenience and utility will at once be apparent on examination.

We give below Price List of Soluble Compressed Hypodermic Tablets most frequently ordered. They are put up in cases of ten tubes, each tube containing twenty tablets; also, in bottles of 100 each.

	Per case	Per 100
1 Morph. Sulph., 1-2 grain	$1 70	$ 75
2 Morph. Sulph., 1-3 grain	1 20	55
3 Morph. Sulph., 1-4 grain	1 10	50
4 Morph. Sulph., 1-6 grain	1 00	45
5 Morph. Sulph., 1-8 grain	90	40
6 Morph. Sulph. 1-12 grain	80	35
7 Morph. Sulph., 1-2 grain / Atrop. Sulph., 1-100 grain	1 70	75
8 Morph. Sulph., 1-3 grain / Atrop. Sulph. 1-120 grain	1 20	55
9 Morph. Sulph., 1-4 grain / Atrop. Sulph. 1-150 grain	1 10	50
10 Morph. Sulph., 1-6 grain / Atrop. Sulph. 1-180 grain	1 00	45
11 Morph. Sulph., 1-8 grain / Atrop. Sulph. 1-200 grain	90	40
12 Morph. Sulph. 1-12 grain / Atrop. Sulph. 1-250 grain	80	35
13 Atrop. Sulph., 1-60 grain	80	35
14 Atrop. Sulph. 1-100 grain	80	35
15 Atrop. Sulph. 1-150 grain	80	35
16 Strych. Sulph. 1-60 grain	80	35
17 Strych. Sulph. 1-100 grain	80	35
18 Strych. Sulph. 1-150 grain	80	35
19 Apomor. Mur., 1-10 grain	1 70	75
20 Apomor. Mur., 1-20 grain	1 20	55
21 Pilocarp. Mur., 1-4 grain	2 80	1 25
22 Pilocarp. Mur., 1-8 grain	1 50	70
23 Pilocarp. Mur. 1-20 grain	1 10	50
24 Pilocarp. Mur., 1-2 grain	5 00	2 25
25 Pilocarp. Mur., 1-3 grain	3 70	1 65
26 Pilocarp. Mur. 1-10 grain	1 40	65
28 Aconitinæ, 1-130 grain	1 20	55
31 Morph., Bi-Mec. 1-4 grain	1 80	80
34 Hydrarg. Chlor. Corros., 1-30 grain	80	35
35 Hydrarg. Chlor. Corros., 1-60 grain	80	35
36 Digitalini, 1-100 grain	80	35
37 Atrop. Sulph. 1-200 grain	80	35
38 Cocainæ Mur., 1-6 grain	2 20	1 00
39 Cocainæ Mur., 1-8 grain	1 80	80
40 Cocainæ Mur., 1-10 grain	$1 50	$ 70
42 Dub. Muf., 1-100 grain	1 00	45
44 Dub. Mur., 1-100 grain / Morph. Sulph., 1-8 grain	1 20	55
45 Hyos. Sulph., 1-60 grain	1 20	55
46 Hyos. Sulph., 1-100 grain	1 20	55
49 Picrotoxini, 1-60 grain	1 00	45
52 Conin. Hydrob. 1-100 gr.	1 00	45
59 Eserin. Sulph. 1-100 grain	1 20	55
60 Eserin. Sulph. 1-100 grain / Morph. Sulph., 1-6 grain	1 50	70
62 Physos. Salic., 1-60 grain	1 20	55
63 Caffeinæ, 1-2 grain	90	40
64 Caffeinæ, 1 grain	1 10	50
66 Quin. Carb. Mur., 2 grain	2 80	1 25
68 Hyos. Hydrob., 1-100 gr.	1 50	70
69 Hyos. Hydrob., 1-50 gr.	2 90	1 30
71 Spart. Sulph., 1-60 grain	1 00	45
72 Trinitrin, 1-100 grain	80	35
75 Morph. Mur., 1-6 grain	1 00	45
76 Morph. Mur., 1-8 grain	90	40
77 Morph. Sulph., 1 grain	3 20	1 45
78 Chlor. Gold and Sodium, 1-100 grain	1 00	45
79 Chlor. Gold and Sodium, 1-75 grain	1 00	45
80 Chlor. Gold and Sodium, 1-50 grain	1 00	45
81 Chlor. Gold and Sodium, 1-20 grain	1 20	55
82 Chlor. Gold and Sodium, 1-10 grain	1 80	80
83 Strych. Sulph. 1-30 grain	80	35
84 Codeinæ Phosph. 1-8 gr.	1 50	70
85 Codeinæ Phosph. 1-4 gr.	2 30	1 05
86 Codeinæ Phosph. 1-2 gr.	3 00	1 35
87 Codeinæ Sulph., 1-4 gr.	2 00	90
88 Strych. Nitras, 1-40 gr.	80	35
89 Strych. Nitras, 1-60 gr.	80	35
90 Strych. Nitras. 1-80 gr.	80	35
92 Morph. Sulph., 1-4 grain / Atropine Sulph. 1-120 gr.	1 10	50

Complete List, comprising 94 different kinds, will be mailed on application.

NOTE.—It will only be necessary in ordering to specify the numbers as above. These Tablets will be sent by mail on receipt of the proper amount.

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